The Rhododendron Society Notes.

Volume I.

1916 - 1919.

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REPORT UPON RHODODENDRON CAUCASICUM AND ITS HYBRIDS.

It will be remembered that at a meeting of the Rhododendron Society, held on October 12th, 1916, it was decided that a small Committee should be appointed to enquire as to the known forms of pure Rhododendron caucasicum species; and secondly, as to what hybrids of interest have been raised, and why the work was given up. Messrs. J. C. Williams and G. W. E. Loder consented to report upon the species, and Sir Edmund Loder agreed to deal with the hybrids.

With regard to Rhododendron caucasicum, attention is naturally drawn to this species and to its hybrids, by the Rhododendron which perhaps gives pleasure to the greatest number of people of all the countless Rhododendron species and hybrids, namely, Rh. Nobleanum.

Readers of gardening books and papers, and visitors to gardens in the different parts of the country, will have been struck by the evidence that R. caucasicum flowers early in the year, and again late in the year, also by the wide area over which it is grown. They will probably have noticed the evidence in many places of considerable work by hybridisers in former days, whilst in recent times it has been abandoned. The hybrids we know well from this cross all hold their own and rather more, and there is none of the harshness in colour which is so often the brand of the catawbiense crosses.

The caucasicum species and many of its hybrids have a few very marked features common to most of them. In the first place, the very erect form of the seed truss, also the readiness with which most of them will strike from cuttings, compared with other large leaved varieties (an instance of which, with regard to Cunningham's white, is given by Mr. Watson, on page 72 of his book, in the "Present-Day Gardening" series). There is a strong tendency to produce a yellow strain in their colouring, of which there are many forms; and also the inclination, referred to above, to give flower in the autumn as well as in the spring. Further, the varieties which are apparently nearest to the true species, ripen their seed earlier than any other Rhododendron, in some cases the pod will burst in July.

The following hybrids, not yet in commerce, have been raised by Messrs. Cunningham & Fraser:—

CAUCASICUM × CAMPYLOCARPUM.

CAUCASICUM × THOMPSONI.

Cunningham's SULPHUR × CAMPYLOCARPUM.

So far as is known, these have not yet flowered.

By the courtesy of their respective writers, to whom the thanks of the Society are due, it has been possible to attach to this report three letters from Professor Bayley Balfour, two from Mr. P. D. Williams, and an extract from a letter of Mr. E. H. Wilson's, all of which are of great interest.

There is also included the results of a search of a number of books in which references to Rh. caucasicum, its varieties and its hybrids, are to be found. They could, no doubt, be added to. As far as they go, they do not disclose much information about the hybrids, which, as Mr. Bean points out (Vol. II., p. 349), are so numerous in gardens.

G. W. E. LODER.
J. C. WILLIAMS.

January, 1917.

The Rhododendron Society Notes.

REFERENCE TO RHODODENDRON CAUCASICUM, BY VARIOUS AUTHORITIES, COLLATED BY G. W. E. LODER and J. C. WILLIAMS.

RHODODENDRON CAUCASICUM, PALLAS. SYN. RH. CAUCASEUM.
Introduced in 1803.

Plate in Pallas "FLORA ROSSICA," 31 (published 1784).
,, Bot. Mag., 1145.

Mr. W. J. Bean, in "TREES AND SHRUBS HARDY IN THE BRITISH ISLES," Vol. II., p. 349, gives the following information :—

RH. CAUCASICUM, 2 feet, flowers yellowish-white or with a pale lilac tinge, produced during June, and the following varieties and hybrids are enumerated :—

CHRYSANTHUM, PALLAS. There is a plate of this in Pallas "FLORA ROSSICA," No. 31. From Siberia and N.E. Asia, nearly allied to Rh. caucasicum, yellow flowers, and differs in its smaller leaves, quite smooth on both surfaces. Very unsatisfactory in cultivation, and never seen in flower by Mr. Bean.

CAUCASICUM PICTUM. "Nearly allied to" caucasicum.

CUNNINGHAM'S WHITE, raised by James Cunningham, of Comely Bank, about 1830, between caucasicum and ponticum album. (Syn. caucasicum album.)

NOBLEANUM (caucasicum × arboreum). Bot. Reg. 1820.

PULCHERRIMUM (caucasicum × arboreum), Bot. Reg. 1820.

ROSA MUNDI. "Very near caucasicum in leaf and habit."

STRAMINEUM. Pale yellow flowers. Bot. Mag., 3422.

SULPHUREUM (caucasicum × arboreum album). Raised at Cunningham and Fraser's Nursery, Comely Bank, Edinburgh.

VENUSTUM. Raised by Mr. W. Smith, of Norbiton, near Kingston, between caucasicum and arboreum.

JACKSONI. "An identical plant," said to come from caucasicum crossed with Nobleanum, raised by Mr. Jackson, also of Kingston.

(N.B.—Professor Bayley Balfour writes that there are *two* Rhododendrons known as Jacksoni in gardens, and states that Rh. chrysanthum is quite a distinct species. See letter dated 8th November, 1916, attached.)

Schneider, in Vol. II., p. 482 (published 1912), gives Flavidum, Regel, as a variety of caucasicum, and enumerates the following hybrids :—

CAUCASICUM × CATAWBIENSE.

"CUNNINGHAM'S WHITE" (no parentage given).

CAUCASICUM × PONTICUM="CAUCASICUM HYBRIDUM."

CAUCASICUM × ARBOREUM=PULCHERRIMUM and NOBLEANUM.

RH. CHRYSANTHUM, PALLAS, is given as a separate species not as a variety of caucasicum.

Mr. W. J. Bean, in a letter to Mr. Eley dated 20th July, 1917, writes :—

> " In the most interesting and valuable article on R. CAUCASICUM and its hybrids, I am afraid that I am made to appear as having considered R. CAUCASICUM and R. CHRYSANTHUM to be varieties of one species. The fault no doubt is mine in not having made it sufficiently clear in my book at the place cited, but, as a matter of fact, I have never regarded them as other than perfectly distinct species." *See page* 4, §3.

The above note constitutes the only material difference between the so-called 1st and 2nd editions of Vol. I., Part I. of the Society's Notes.—C. C. E.

Loudon, in "ARBORETUM ET FRUTICETUM," Vol. II., p. 1138 (published 1838, gives :—

CAUCASICUM, PALLAS, with a small wood-cut. The flowers are described as "purple or white."

And the following varieties :—

STRAMINEUM, HOOK. "Flowers straw-coloured."

PULCHERRIMUM, LINDL. (arboreum × caucasicum). "A hybrid raised by Waterer, of Knaphill, in 1832." Bot. Reg., 1820.

NOBLEANUM, HORT., "a hybrid very much like the preceding one in all respects except that its flowers are of a brilliant rose colour." Bot. Reg., 1820.

The plate of pulcherricum above referred to (1820, in the Botanical Register), is like what would presumably be called Nobleanum. In the corner of the plate is *one flower* of a darker colour, said to be Nobleanum.

At the Ordinary Meeting of the Royal Horticultural Society, on February 5th, 1838, "Mr. George Glenny exhibited a Rhododendron said to have been raised by himself from seed. It did not appear different from a variety raised some years since by Mr. Waterer, of Knaphill, and called in the gardens Rh. pulcherrimum."

Pritzel refers to the following plates connected with caucasicum :—

CAUCASICUM, PALLAS, PALLAS FLOR., ROSS, 31 Guimpel Fr. Holzgew 124. Bot. Mag., 1145.

CAUCASICUM variety STRAMINEUM. Bot. Mag., 3422.

CAUCASICUM variety HYBRIDUM ALBUM. Bot. Mag., 3811.

CAUCASICO-ARBOREUM, Hort., Maund Bot., 4. 157. This shows a pink-white Rhodo. with spotted throat and is stated to have been raised by Mr. Smith, of Norbiton. It is synonymous with venustum. See Sweet, series 2.t.285.

CHRYSANTHUM, PALLAS, Pallas Flor. Ross. 30.

WOODV. Med. Vol. III., p. 149 (the plate is much the same as that in Pallas).

BERL. YAHRB. 1811. 2.

GUIMPEL FR. HOLZGEW. 123.

HAYNE. 10.27.

NEES DUSSELD. 216.

GUIMPEL ET SCHL. 42.

In addition to the above there is a plate of caucasico-venustum "ROSALBA" in Flore des serres, Vol. X., plate 1038. This shows a pink-white flowered rhododendron, but no account is given of its origin.

In "GARTENFLORA," Vol. XVIII., 1869, p. 113, reference is made to Rhodo. caucaseum-splendens and Rhodo. caucasicum albo-roseum, but no mention is made of their origin, and there is no plate.

In "GARTENFLORA," Vol. XVI., 1867, p. 322, a description is given of Rhodo. caucasicum, Pallas, variety flavidum, and a plate, No. 560, which shows a

Rhodo. light-yellow in colour with green spots in the throat. Regal in his note on this Rhodo. appears to draw distinctions between flavidum, stramineum, and chrysanthum.

Maund's "BOTANIC GARDEN," Vol. X., contains plates of Rhododendron caucasico-ponticum, 903, which represents a white flower with pink spots, and Rhododendron caucasicum, 947, having much the same flowers, only spotted yellow.

From Nicholson.

"RH. CAUCASICUM=rose coloured outside, white within, spotted green at the throat. August (flowering ?), height 1 ft. Caucasus, 1803, B.M., 1145.

"RH. C. FLAVIDUM (yellowish flowered), fl. straw colour, spotted with green."

"C. STRAMINEUM (straw coloured), fl. straw colour, fulvous coloured within (oblong 3422)."

Paxton, Vol. II., p. 231, date 1836.

"RH. CAUCASICUM and its two varieties usually grow from 2 to 3 ft. high, but rarely exceed 2 ft., except in very favourable situations."

Bot. Mag., Vol. XXVII., plate 1145, date 1808.

"RH. CAUCASEUM. A low shrub, branches spread on the ground, nearly naked, the leaves as well as the flowers being chiefly on the assurgent extremities . . . Leaves ovate, quite entire with margins rolled back . . . roughish on the upper surface and covered with a fine pale rust coloured down underneath . . . having a weak scent of sweet briar when rubbed. . . ."

There is so great an affinity between this species and Rhododendron chrysanthum, that Pallas seems to doubt if they ought not to be considered mere varieties. It is a native of the most elevated parts of Mount Caucasus, on the verge of the regions of perpetual snow.

Mr. Loddiges informs us that (Rh. caucaseum) it is far less shy than Rhododendron chrysanthum, which although it has been much longer in his possession, he has never been able to flower but very imperfectly.

Bot. Mag., plate 3422, date 1835.

"The Rhododendron Caucasicum would appear to be subject to so much variation in the size and colour of the flowers if we judge from the only figures I am acquainted with, that in the "FLORA ROSSICA," and that in the "BOTANICAL MAGAZINE"; in the former which we may consider as the colour of the flowers of the *native* plant, they are comparatively small, and entirely of a delicate pink or rose colour; in Curtis's figure they are as large as those of Rh. arboreum, pure white within, spotted with green and tinged with a deep shade of blush on the outside."

"In our Glasgow Botanic Garden, and some other collections in Scotland, there is cultivated as the Caucasicum, the extremely beautiful variety here figured than which I can conceive no plant more desirable or more ornamental for an American border or shrubbery. At this (April, 1835), notwithstanding a most unpropitious spring, our bushes, one of which is two feet high and three feet

in diameter, have the extremities of their fine leafy branches terminated with an umbel of large beautiful straw-coloured flowers, forming a striking contrast with the rich scarlet of other kinds of Rhododendron already beginning to show their blossoms in the same border. If the Rh. Chrysanthum had been a common plant in our collections, I should have thought our present one might have been an offspring from it and the true Caucasicum," etc., etc., etc.

From Withers.

RHODO CAUCASICUM. A pretty spreading or decumbent Caucasian species, about 1 ft. high. Leaves lance-shaped, ovate or obovate, rusty beneath. Flowers in August, rosy outside, white within, spotted with green, more or less bell-shaped. There are varieties with white, rose, and pale yellow flowers.

RHODO CHRYSANTHUM. A dwarf Siberian shrub, with linear lance-shaped leaves, rusty beneath, and narrowed into a long stalk. Flowers in summer, golden yellow, about 1 in. across, broadly bell-shaped, in terminal clusters. To keep this plant in good condition, it should always have a good layer of Sphagnum Moss around the stems and covering the soil.

PROFESSOR BAYLEY BALFOUR TO MR. J. C. WILLIAMS.

19*th October*, 1916.

DEAR MR. WILLIAMS,—It is splendid that you and Mr. G. Loder are tackling RH. CAUCASICUM and its forms, and I hope you will shed light upon a complex problem. You have a starting point in two species—the Caucasian RH. CAUCASICUM and the Siberian RH. CHRYSANTHUM. The former white and pink flowered and with a fine velvety indumentum. The latter yellow flowered and with an inconspicuous hardly developed indumentum upon an evident reticulately veined leaf surface. They were species of early introduction—CAUCASICUM said to be 1803, CHRYSANTHUM 1796. There were few hybridising species available for some years after these appeared. That they were frequently crossed I have little doubt, and I have as little doubt that the yellow colour of all the so-called CAUCASICUM is derived from CHRYSANTHUM. Whence otherwise could it come ? There was of course FLAVUM and the colour factor of FLAVUM may have held in RH. CAUCASICUM after other influences, if they ever impressed CAUCASICUM, had disappeared. But the essential in all descents from CAUCASICUM seems to me to be that a yellow CAUCASICUM is a hybrid. I think Hooker's suggestion under t. 3422, of the Bot. Mag. is not far wrong—CAUCASICUM variety STRAMINEA of the figure " might have been an offspring from it (CHRYSANTHUM), and the true CAUCASICUM." Both bloods are in it. And you must remember that though RH. CHRYSANTHUM is a rare plant—the dourest of the dour—yet it does flower occasionally, as it did here this season, and that it is to be found in cultivation. A nice plant of it came to me this year from a nurseryman under the name CAUCASICUM. That the so-called CAUCASICUM in cultivation is a mongrel I have had proof abundantly. Never have we got a pure bairn from CAUCASICUM seed acquired in different quarters—anything from pink flowered to yellow flowered offspring. I have now a nice pan of it from

Petrograd seeds, of which I have hopes, and that I may see the true CAUCASICUM at last. Further evidence of its hybrid character is to be found in the indumentum. Not one of the plants that we have had as CAUCASICUM has typical CAUCASICUM indumentum. All of them show an approach to CHRYSANTHUM. Apart from the indumentum the somatic characters of cultivated CAUCASICUM are more those of CAUCASICUM than of CHRYSANTHUM. Perhaps ROSA-MUNDI is the most chrysanthoid in body of the named hybrids, and it is essentially caucasicoid in flower.

Bot. Mag., tab. 1145, is a curious plant. No true CAUCASICUM has a venation such as is shown on the leaves of the illustration. The plant recalls several unnamed hybrids which have been in cultivation for half a century here.

To your question then : How many forms of CAUCASICUM are in cultivation ? I would answer—to my knowledge, none ! There are only hybrids.

In illustration of the mixed progeny that comes from CAUCASICUM, here is a scheme based upon what I have learned from Mr. Fraser, of Cunningham and Fraser :—

CAUCASICUM ♀ (yellow)	× red ARBOREUM=	NOBLEANUM.	
	× white ARBOREUM=	white NOBLEANUM	
		CUNNINGHAM'S SULPHUR (1882)	
		CUNNINGHAM'S WHITE (1820-30)	

I gather that the CAUCASICUM white ARBOREUM cross gave dominant white NOBLEANUM and recessive CUNNINGHAM'S SULPHUR.

The female parent in all was evidently the hybrid, not the true pink CAUCASICUM. This you will recognise is most important.

Mr. Fraser tells me that all these CAUCASICUM crosses give fertile seed and breed true. Certainly CUNNINGHAM'S SULPHUR comes true from seed, and probably it is recollection of comment upon this that has left the impression upon your mind of its being a true species.* It seems to me that here as in others of these long cultivated plants, a new record will have to be begun if we are to solve the problem of their real relationships. Systematic breeding from plants raised from seed of undoubted true wild species must be carried out.

ISAAC BAYLEY BALFOUR.

PROFESSOR BAYLEY BALFOUR TO MR. J. C. WILLIAMS.

ROYAL BOTANIC GARDEN, EDINBURGH,
28*th October*, 1916.

DEAR MR. WILLIAMS,—The seedling caucasicums have reached you, I am glad to hear, and I hope are to prove to be the true species. Their source is promising. I hope I have not misled you about Rh. chrysanthum, by speaking of it as Siberian. I did not intend to convey that chrysanthum is limited in distribution to Siberia. Its spread is geographically and phyletically interesting.

* Cunningham's yellow at the Edinburgh Botanical Gardens having been found there to come true from seed, it is possibly a true species.—J.C.W.

The archives of the Petrograd Herbarium will have to be searched to obtain a complete picture of the area which it is recorded as covering. The information I have gathered tells of its occurrence from the Altai on the west, eastwards along the snow ridges of Sajan, then around Lake Baikal and down the Amur, in fact, along the Siberian-Mongolian-Manchurian Divide. Thence into Kamtchatka and the Islands of the Behring Sea, and southwards into Yeso, and the high hills in Central Japan. The distribution is quite a natural one in the light of what we conjecture of the peopling by plants of this surface of the earth. The pharmaceutical virtues of chrysanthum has probably led, as Pallas says, to its distribution by man beyond the bounds to which nature would have allowed it to spread. There are several stations for it in Japan. I saw it in the Alpine Garden at Nikko, in the neighbourhood of which it grows, and have a good specimen from the Nikko Hills, sent to me by Mr. Mochiguki, the custodian of the Garden. But its best home in Japan is the Hiva and Etchm range further west than Nikko, the high hills of which I was only able to gaze on with longing eyes. I have not seen the * article by Wilson, of which you speak, and shall look out for it.

I. BAYLEY BALFOUR.

PROFESSOR BAYLEY BALFOUR TO MR. G. W. E. LODER.

ROYAL BOTANIC GARDEN, EDINBURGH,

8th November, 1916.

DEAR MR. LODER,—Thank you very much for letting me see the notes upon RH. CAUCASICUM, which I take it pretty well include all that is on record about CAUCASICUM. RH. CHRYSANTHUM is quite a distinct species. You refer to the colour of the flower in Pallas's figure, and the contrast with the description is striking, but I note that those white-pink Rhododendrons often take on, as they olden, this lilac colour.

As regards my mention of the two JACKSONI'S, our old JACKSONI, which has been here as long as I can remember, is a plant which strikes me as being a secondary hybrid from NOBLEANUM. It is a more useful plant than NOBLEANUM. It comes into flower about a fortnight later, and therefore, more often misses the early spring frosts. It forms trailing branches and large trusses of flowers slightly paler than NOBLEANUM, and sometimes slightly fringed. It is the freest of flowerers, and never fails. Many years ago I wanted more of it, and bought in the market the JACKSONI of commerce, but it proved to be altogether a different plant—really not very different from CAUCASICUM PICTUM. One of our expert Rhododendron growers here told me that this form is the modern JACKSONI. It is worthless compared to the old JACKSONI.

NOBLEANUM was raised by Cunningham and Fraser here, at the same time as by the Nobles, in the south, and to this day, Cunningham and Fraser maintain that they had it first, and their parentage to me is yellow CAUCASICUM crossed with red ARBOREUM. There is one feature in NOBLEANUM which your investigation might throw light upon, and which might also throw light upon your investigation.

* The GARDEN MAGAZINE, for June, 1916, published New York.

As you will have noticed, Rh. NOBLEANUM is invariably eaten by beetles. So marked a feature is this of the plant that at a distance you can recognise a NOBLEANUM or a plant with NOBLEANUM blood in it by the gnawed leaves. The old JACKSONI has this feature only in a limited degree. ARBOREUM does not show this character markedly. Whence did NOBLEANUM get it? There must be something particular in its leaves which has an attraction for the beetle, because you will find plants of NOBLEANUM so eaten in the midst of other rhododendrons which do not show a single scar. I have no data for a conclusion, but it seems to be likely that the character has come from the female parent of NOBLEANUM, and as the female parent of NOBLEANUM was a yellow CAUCASICUM, and must, therefore, have been a cross between CAUCASICUM and, I believe, CHRYSANTHUM one should look for the character in those two species. I do not know that we have really true CAUCASICUM here, and our material of CHRYSANTHUM is too scant to give any data for conclusion, but I think those growers who have plants of CAUCASICUM true, and of CHRYSANTHUM, should examine them carefully and see if either or both of them show particularly this feature of being gnawed by beetles.

I do not know that my seedling CAUCASICUM from Petrograd are certainly the true species, but the source gives one confidence in believing that they may be.

I return herewith your MS, the results of the whole investigation will be most interesting.

I. BAYLEY BALFOUR.

EXTRACT FROM A LETTER OF MR. E. H. WILSON TO MR. J. C. WILLIAMS, dated *9th November*, 1916.

It is surprising to me to learn through your letter of October 14th, that anyone should consider Rh. chrysanthum a form of Rh. caucasicum. Rh. chrysanthum as I know it on the high mountains of Northern Japan, is a low shrub with pale yellow flowers, and I cannot see that it has anything to do with Rh. caucasicum, with its white and pink flowers as figured in Bot. Mag., tab. 1145. As far as my studies go, I have no knowledge of any Caucasian plant being represented by form or variety in the flora of Eastern or North-Eastern Asia.

EXTRACT FROM A LETTER OF MR. P. D. WILLIAMS TO MR. C. C. ELEY, dated *6th January*, 1917.

The late Mr. Claud Daubuz, a neighbour of mine, sent the grafts of what he called Rh. Nobleanum venustum to Rogers, a nurseryman, of Southampton, and doubtless he can supply plants.

It is more upright than some forms of Nobleanum. This plant is the earliest flowering form of Rh. Nobleanum, and paler than most, assuming that it *is* a form of Nobleanum, and I group it with Nobleanum.

Rh. venustum I do not know as a separate plant, but Nobleanum venustum is a plant of character, and also earlier and paler than our other forms of Rh. Nobleanum. It is now opening, and I will try to send you a flower next week.

The only Rh. Jacksoni that I know is the form that Smith, of Darley Dale, sells, it is sprawling, but flowers in late April or early May.

The darkest form of Rh. Nobleanum (it is not Nobleanum, I am told), is known as Altaclarense. This too, Smith had ; it is a long way from a blood-red, but brighter than the usual Nobleanum, still near enough to be grouped with if for a layman. This may be the Jacksoni " Crimson Scarlet," sold by Smith, of Darley.

Loudon, Vol. II., 1136, says that Nobleanum is a caucasicum hybrid. In Vol. IV., I see Altaclarense listed by Richard Forrest, of Kennington, at 21/-, and venustum, by Lawson & Sons, of Edinburgh, at 30/-, and I believe that they were the best forms that came out of the cross.

P. D. WILLIAMS.

A Letter from Professor Bayley Balfour to Mr. C. C. Eley, dated *January 16th*, 1917.

Dear Mr. Eley,—It always gives me pleasure to have letters from you about plants. If I help you by giving such information as I can, I too, benefit by information which you give to me, and by having to bring to focus derelict facts. Moreover, I am kept humble by finding there is so much to learn, even about groups to which I have given special study for some years.

The Rhododendron truss arrived to-day. Rh. venustum, D. Don is a hybrid (caucasicum × arboreum), raised by Mr. Wm. Smith, in 1829 (see Sweet's Brit. Fl. Gard., ser. 2, III., 1835, 285). The original description makes it a dwarf shrub, not exceeding 8 inches in height. Nothing is said about the caucasicum used, and as you know the caucasicum (seed parent) of Nobleanum and the early crosses was a yellow caucasicum and, therefore, not caucasicum, but a hybrid probably caucasicum × chrysanthum. The figure in " Sweet " recalls our true Jacksoni, but the flower is paler.

Nobleanum is as you know a hybrid (yellow caucasicum × red arboreum).

The name Nobleanum venustum has not come my way before, but I need not discuss it as a whole or in its halves, because Mr. P. D. Williams' Rhododendron has nothing to do with either Nobleanum or venustum.

It is one of the crowd of hybrids (catawbiense × arboreum), which were raised in the twenties, thirties and forties of last century, before the Sikkim flood. arboreum is said to have come in about 1818, and every gardener in the country fell victim to the temptation of using it as a pollen parent for hybrids. Some have survived, e.g., Russellianum ; most have disappeared under their first names, reappearing some of them under new names through subsequent raisers.

Here we have a number of them (stems six or more inches). Cunningham and Fraser had quite a field of them until recently. In our neighbourhood is a relic, still hale and hearty, of the past, in Mr. Grieve, nearly nonagenarian, a great Rhododendron hybridist, and I sent Mr. Harrow with your truss to him for a name. SHERWOODIÆ, he said at once (CATAWBIENSE × ARBOREUM). I have no record of the name, and shall have search made for it. (See note below.) The merit of this hybrid is early flowering as Mr. P. D. Williams says.

ALTACLARENSE is a well-known hybrid (CATAWBIENSE × PONTICUM × ARBOREUM RED). You will find a full history of this in the Botanical Register XVII (1835), t. 1414. It was raised by Gowen, at Highclerc, in 1826. It has no right to have the name NOBLEANUM attached to it. It is too well known under its own name to be renamed JACKSONI "CRIMSON-SCARLET," by Smith, of Darley Dale.

I hope the RH. JACKSONI will thrive.

ISAAC BAYLEY BALFOUR.

In a subsequent letter to Mr. Eley, dated 21st January, 1917, Professor Bayley Balfour writes :—

"I see that the correct name is Rh. Sherwoodianum—not Sherwoodiœ—my miswriting. Lawson's Catalogue, 1858, has 'Rh. Sherwoodianum, lilac-rose spotted,' which is not very descriptive of Mr. P. D. Williams' specimen, but who shall dispute about this?"

LETTER FROM MR. P. D. WILLIAMS TO MR. C. C. ELEY,
dated 1*st February*, 1917.

LANARTH, ST. KEVERNE, R.S.O., CORNWALL.

DEAR ELEY,—I returned your caucasicum papers hurriedly without a covering letter. They are most interesting. Whether my plant is venustum or not seems open to argument, but I do think that it is not a catawbiense but is a caucasicum hybrid, the seed pods point to it. Mr. Peter Veitch talks of Rh. venustum in his books previous to 1863, as "variety of Nobleanum spotted," also "shaded deep pink or rose, compact truss, neat and good." This I think my plant answers to, and it is very probable that it came from Veitch, of Exeter. We have no really old men in Cornwall now who are well up in such things, but I am confident that my father and Mr. Daubuz (who were always very reliable about plant names), invariably called this plant Nobleanum venustum.

Can you put a query in the notes asking if anyone has any knowledge or even recollection of such a plant? I would also ask for information on "Rh. cinnamoneum var. Cunninghami" (cinnamoneum × maximum), raised by Mr. G. Cunningham, of the Nursery, Liverpool. Wonderful truss, pure white, purple spots, leaves covered with abundant resinous secretion rendering them sticky to the touch.

P. D. WILLIAMS.

The Rhododendron Society Notes.

EXTRACT FROM A LETTER FROM PROFESSOR BAYLEY BALFOUR TO MR. J. C. WILLIAMS, dated 21*st January*, 1917.

DEAR MR. WILLIAMS,—In the matter of RH. CAUCASICUM, I see that Lawson's (Charles Lawson & Sons, prominent nurserymen of Scotland, in the middle of last century), give in their Rhododendron Catalogue of 1858 (I have no doubt that the preparation of this was the work of Mr. William Gorrie, a noted gardener of that date who was their Manager), the following :—

RH. CAUCASICUM, Pallas. Native of the Caucasian Mountains, near the perpetual snow line. Height 1 ft. to 2 ft. Peat soil, in cool, partly shaded situations.

CAUCASICUM ALBUM. Fine early white.

ANGUSTIFOLIUM. White.

INVOLUTUM. Straw-coloured.

PICTUM. Peach colour, much spotted with red.

PURDIE'S WHITE. Shaded with rose.

ROSEUM. Rich rose.

STAMINEUM. Pale straw-colour.

VENUSTUM.

VENUSTUM was first described by David Don, in Sweet's " BRITISH FLOWER GARDEN," as a plant of 8 inches high.

Lawson's also have the following :—

" CHRYSANTHUM, fine yellow."

McLelland, of Newry, whom Smith, of Newry, succeeded, has in his catalogue of 1881-1882, the following :—

CAUCASICUM. Yellowish-white (wants shade).

,, ALBUM. (Cunningham's white), dwarf.

,, PICTUM. Pink dark spots."

Evidently CAUCASICUM was at that date in the trade a " yellowish-white." CAUCASICUM ALBUM is too the same as CUNNINGHAM'S WHITE.

ISAAC BAYLEY BALFOUR.

The Rhododendron Society Notes.

RHODODENDRON CAUCASICUM AND HYBRIDS.

CONTRIBUTED BY SIR EDMUND LODER, Bart.

The earliest figure I can find of Rhododendron caucasicum is in Pallas' "FLORA ROSSICA," published in 1784. The coloured plate shows pale lilac flowers, but the description says "alba vel subrubens."

Pallas also gives a coloured plate of Rhododendron chrysanthum, which I take to be a near relation of Rhododendron caucasicum. Rhododendron Przwalski must also be nearly related.

Another early coloured plate of Rhododendron caucasicum was published in the "BOTANICAL MAGAZINE," about the beginning of the last century. Plate 1145. Here the corolla is shown white, within tinged with rose on the outside surface.

Some years later, in 1835, there was published in the "BOTANICAL MAGAZINE," a coloured plate, No. 3422, of Rhododendron caucasicum var. stramineum showing a straw-coloured flower. It is like the form figured as Rhododendron caucasicum, in Maund "BOTANIC GARDEN," No. 947.

I do not know who was the first to make crosses with Rhododendron caucasicum and other species, but Mr. Peter Veitch, of Exeter, tells me that he has an old Nursery List Book of his grandfather's time, and he finds under No. 157, Rhododendron caucasicum hybrid=Rh. ochroleucum. There is unfortunately no record of the other parent.

There is also mentioned Rhododendron caucasicum Ramsayanum.

In this old list book there is much evidence of hybrid work with Rhododendron caucasicum, but the notes are not there which would show parentage.

A man named Abbey has raised hybrids of Rhododendron caucasicum and Rhododendron Aucklandi, and Mr. Peter Veitch has bought this stock. So far he has only distributed one of these hybrids, viz. "Dr. Stocker."

In Vol. X., No. 1038 (1855), "FLORE DE SERRES," there is coloured plate of a very beautiful Rhododendron under the name of RH. ROSALBA (Rhododendron caucasicum-venustum), but no details of its parentage are given. It is possible that this is the source of the well-known Rh. venustum, which is probably identical with Rh. Jacksoni (Rh. caucasicum × Rh. arboreum). The other equally well-known hybrid, Rh. Nobleanum, being Rh. arboreum × Rh. caucasicum.

Among the earlier hybrids is Rh. govenianum, which is a cross between Azalea nudiflora and a hybrid between Rh. ponticum and Rh. caucasicum.

Some years ago I bought in Edinburgh, a quantity of hybrids of Rhododendron caucasicum. "Rh. Stanwellianum"=Rh. caucasicum × Rh. catawbiense. "Rh. Stanwellianum robustum" = Rh. caucasicum × Rh.

campanulatum robustum, also Rh. Thomsoni × Rh. caucasicum, and Rh. arboreum album × Rh. caucasicum. All these are very good.

I think it is obvious that many of the light coloured Rhododendrons now common in gardens are crosses of Rh. caucasicum. Such as " Snowball," " The Bride," " caucasicum pictum," " Cunningham's White."

A Rhododendron from Comely Bank, Edinburgh, called Rhododendron sulphureum is said to be a hybrid between Rhododendron caucasicum and Rhododendron arboreum album.

In my opinion, this plant is not a hybrid, but a seedling variety of Rhododendron caucasicum.

I believe J. C. Williams has some large plants of Rh. caucasicum stramineun × Rh. campylocarpum. My plants of the same cross are smaller. It will be of interest to put on record the early ripening of this seed.

In this climate Rhododendron seed is usually ripe in early spring, but in the middle of October I found the seed pods open, and about half the seeds gone. This would be four to five months earlier than I should have expected to find ripe seed. This is the only case of the kind which has occurred here.

Some years ago I raised a large batch of seedlings of Rh. ochroleucum (which is a hybrid of Rh. caucasicum), and Rh. Aucklandi. The notable point about this batch is its extreme unevenness.

Some are fine plants, of vigorous growth, handsome foliage and large loose truss.

Other plants of the same batch are miserable things, with thin yellow foliage and stunted growth.

After a sufficient trial these have been rooted up and thrown away, but the reason why they should differ from the others has not been discovered.

EDMUND GILES LODER.

The Rhododendron Society Notes.

NOTES ON RHODODENDRONS AT BORDE HILL, DURING 1916.

Contributed by Lieut.-Colonel Stephenson Clarke, C.B.

During the very mild January, Rh. Dauricum bloomed better than I have seen it bloom here before, a plant of a deciduous variety as usual being far better than a nearly evergreen one in the same bed. Before the winter had ended or rather before it began in March, a species bought from J. Veitch & Sons, Coombe Wood, as Rhododendron Rirei bloomed for the first time, the individual flowers if not as large as those of sutchuenense, were larger than those of any other campanulate flowered Chinese Rhododendron that has flowered here, Davidi's and Fargesi's flowers being certainly smaller; the blossoms were, it must be confessed, of a colour approaching that of ponticum, still I thought it quite pretty, and it came at a season when there was little competition from other varieties.

In the early spring, blooms were produced here for the first time by Rh. grande, and Rh. Elsæ, the latter I believe a hybrid from the former, if so, it improved on its parent, as it produced ten large trusses for its first effort against one on grande. Another debutante was Rh. Hookeri, but on this plant only one truss opened, the other buds having dropped after the snowstorms in March.

A plant of Rh. Fargesi and another of Rh. Davidi were covered with buds. Early in the winter, thinking to make certain that the flowers should open undamaged by weather, I had them taken up and planted in tubs, and then removed to a cold orchard house, a disastrous error, as nearly all the buds dropped, while the few trusses on a Fargesi left in the open border, opened unblemished by weather; at the same time that I moved these plants I potted up the survivor of a pair of Rh. soulei, bought from J. Veitch & Sons. This plant opened one truss of flowers, but apparently the shift has disagreed with it, and while it was never a thriving Rhododendron, I fear that now it means dying like its fellow. Two or three Rh. aucklandi, under a north wall produced flowers uninjured by frost, which in this garden is unusual; we missed our usual crop of blossoms on the Edgworthi hybrids, fragrantissimum, Lady A. Fitzwilliam, etc., as they had failed to bud, and Rh. Maddeni, which had formed its buds well, dropped them after the March snowstorms, a considerable disappointment, as it is usually a great success on an east wall; generally opening its flowers after the other large flowered species are over.

Some hybrids between Fortunei and campylocarpum were attacked by some rodents (probably field mice or voles), and badly gnawed at the collar, though not sufficiently deep to kill the plants; the check induced two of them to flower prematurely; the flowers opened well and were of the colour of ivory.

These were not the only rhododendrons injured in my garden by animals this year, the rabbits damaged several seedling arboreums, raised from a favourite rose coloured variety. These plants were a foot to 18 inches high, and

were planted among a number of other ARBOREUMS of different varieties, none of which were touched by them ; and we have never had ARBOREUMS injured by rabbits before, except by the low trick of burrowing underneath them.

I should like to ask if others have noticed the very effective way in which the hairy variety of Rh. BARBATUM catches wasps, the gum from the buds exuding on to the bristles "bird limes" them; in 1915, numbers were caught and died on the buds of my plant. I have never observed this to happen on the ordinary variety.

My plants of RHODOTHAMNUS CHAMÆCISTUS had dwindled to one, so remembering a success with Daphne Blagayana I layered all the shoots, and it made astonishing growth afterwards ; I hope that this promises success for the future. RHODODENDRON INTRICATUM, and other very dwarf species have also been a difficulty here. I am trying the same method with INTRICATUM, and I think that the result so far is promising.

As regards difficulties, since all efforts to coax Rh. NUTTALLI, DALHOUSIÆ and CILIICALYX through the winter have been abandoned, very few if any rhododendrons have been lost in winter, but I annually lose a few plants, generally dwarf varieties, such as INTRICATUM, EDGARIANUM, and PRIMULINUM, during the autumn, while I am away in Scotland. I cannot help thinking this is largely due to drought. I lost also last September a plant, recently moved, of Rh. ARBOREUM BLOOD RED, bought from Reuthe, and I have found this variety before apparently resent removal, though when established it generally does well, and its flowers are but rarely damaged by frost.

I trust the length, and I fear very humdrum nature, of these notes may be pardoned by my readers.

STEPHENSON R. CLARKE.

5th February, 1917.

SOME NOTES ON THE GARDEN AT EAST BERGHOLT PLACE.

Contributed by Charles Eley.

This garden consists of a small ancient garden and the additions which have been made to it since 1875, the greater part of which has been done from 1900 onwards.

The site, about 130 feet above sea level, is an exposed one for the most part, consequently a large part of the work has consisted in planting, undertaken to secure that shelter which is necessary to the comfort of most plants, and almost vital to the successful growing of rhododendrons.

With the exception of a few old hardy hybrids, there are no rhododendrons here more than about twelve years old, and the only point worthy of note is that a fair number of the Himalayan varieties are progressing steadily, having been planted here about nine years, and are believed to constitute the only plants of their kind in this dry and cold neighbourhood. There are also a good number of small rhododendrons from the collections of Henry, Wilson, and Forrest, for most of which the owner is indebted to members of the Rhododendron Society. It follows from this that there is little to recount regarding the rhododendrons here, and what little of interest in this respect there may be, may well wait until, in some future year, Notes are again required.

But in order to qualify for a copy of the Society's Notes, even if it has to be taken with a blush, the writer will attempt some remarks upon the composition of shelter belts in gardens, in the hope that it may provoke other members to enlarge upon the possibilities.

Visitors for the first time to that Meccah of gardeners, Cornwall, must often have been driven by despair to the conclusion that they would do well on their return to burn all their books and to begin anew.

On recovery from the first shock, consideration will force upon them that the amazing results produced there are fundamentally based upon an almost prodigal use of that shelter which is so conspicuously absent from the design of most English gardens, particularly old ones, and is absent, no doubt, for the reason that the makers did not contemplate the cultivation or rare trees or shrubs, but strove to obtain a fine and comfortable frame for their homes, supplying the necessary colour by the use of bulbs, roses and, in later times, of herbaceous plants.

Naturally, it is necessary that the plants for shelter purposes should be ornamental, quite hardy and absolutely dense to the ground; neither greedy of soil, nor of attention; of requisite height, easy to obtain cheaply, and if possible "rabbit proof."

So much for the counsel of perfection, now for the other thing.

Leaving the favoured west altogether out of consideration, one plant alone, the common laurestinus, seems to fill the bill, and that requires to be trans-

planted early in the season to avoid failures, and is of somewhat slow growth. Still, what a plant it is! Next in order of merit one would place Arundinaria metake, the best of all for situations under trees, even beeches; but deficient in height and slow except in moist and loamy soil; A. anceps runs it close, and has the advantage in height, colour and grace, but its habit of "running" needs a ditch or some preventitive, which rubs off some of the gilt.

The mention of growth beneath beeches, calls to mind the fact that that dreary plant, Thujopsis dolobrata, will undertake this duty if required. In light soil, the large leaved variety (and some of the variegated ones), of the common holly is hard to beat, but it needs protection from rabbits for some years, and indeed always unless foliage is maintained close to the ground, as of course it should be for shelter. ESCALLONIA MACRANTHA is quite hardy here in situations which are bone dry in winter, e.g., on the top of a sunk fence.

Perhaps "too slow" will be the verdict of many in regard to the above list, and this charge brings into notice the common laurel (v. rotundifolia for choice), of many merits, and probably the most universally used for the purpose, but, and a large "but" too, it has many disadvantages also. The rapidity of its growth is almost certainly the main reason for its use as a wind-screen, because its tendency to get leggy compels work with the knife, or even the detestable shears. But, if room allows, the laurel can be planted with a "front" of other small evergreen plants (e.g., Mahonia aquifolium—the easiest and most effective combination known to the writer), which will obviate the necessity of maiming a plant which demands to be left in peace to display its really grand form.

The mention of the combination of two or more plants for this purpose opens up much ground, and a subject upon which the writer would be very glad to know the experiences of other members. Does anyone know a plant suitable to front Arbutus unedo, and which would not be crushed out as time went on? But amongst the plants which suggest themselves for the front row of such work the following may be mentioned:—

PERNETTYA MUCRONATA. This plant requires a cool bottom, and is inclined to run, but it is apparently quite "rabbit proof." Always neat and with charming berries.

ULEX NANUS on dry soils, uninteresting, but dense and easy of control.

The old-fashioned Scotch roses.

BOX, BAY, ELŒAGNUS PUNGENS AUREA-VARIEGATA.

GYNERIUM makes a fine ground block, of which the variety sold as "monstrosum" is perhaps the best.

Among plants not so easily obtainable are the evergreen Cotoneasters, varieties buxifolia (10 ft. to 12 ft.), pannosa (10 ft.), and amoena (3 ft. to 5 ft.).

BERBERIS STENOPHYLLA is preferable to BERBERIS DARWINII, in that it maintains density with much less attention, but is not so attractive at all seasons.

The barberries have an evil reputation as soil robbers, but B. Sargentiana, said to form a dense upright thicket 6 ft. in height, and B. Verruculosa (2 ft. to

4 ft.), should prove useful. Also B. gagnepainii, B. levis and B. Hookeri, all of which are distinctive enough to give a valued change of form and colour. The two last genera appear to be rabbit proof.

That desirable weed, the evergreen privet, is omitted from this list, as well as the aucubas, and also that large army of evergreens which tend to assume the form of a triangle standing on its apex.

If great height is required, and leaving aside all deciduous trees, the following are invaluable :—

PSEUDOTSUGA DOUGLASII VAR. GLAUCA (the type is omitted because of the immense room that it demands, and its liability to damage by wind).

PICEA OMORIKA and PICEA SITCHENSIS.

Of course PINUS LARICIO and P. AUSTRIACA, are an unbeaten combination, with the latter planted in front. Rabbits love Pinus austriaca, but P. laricio seems immune except when planted in very bare ground.

LIBOCEDRUS DECURRENS or JUNIPERUS CHINENSIS, either as a mammoth hedge or in an irregular group.

CUPRESSUS MACROCARPA, of which the golden variety is believed to be hardier than the type, and singular in this respect.

CUPRESSUS LAWSONIANA VAR FRASERI.

All these plants are it is feared very " ordinary," but they have proved the best of garden helps in this excessively dry climate.

While putting these Notes together, the mind of the writer has been beset by a vision of many grandmothers bearing in their hands baskets of eggs. These have now assumed a threatening attitude, and cry in unison, " Take a copy of the Notes, by all means, but for goodness sake, stop talking."

CHARLES ELEY.

February, 1917.

The Rhododendron Society Notes.

PORTRAITS OF SIR J. D. HOOKER, ETC.

CONTRIBUTED BY CHARLES ELEY.

I was indebted to Mr. J. C. Williams for a copy of "THE GARDEN MAGAZINE," for June, 1916, published by Doubleday, Page & Co., Garden City, New York (price, 15 cents).

It contains an excellent article on Hardy Rhododendrons, by Ernest H. Wilson, of the Arnold Arboretum.

There are six illustrations, and a considerable mass of information descriptive of new varieties, and the best method of their cultivation. It is intended mainly for gardeners in New England.

In 1915 I acquired a mezzotint portrait in the "mixed method," inscribed "Dr. J. D. Hooker, F.R.S., in the Rhododendron region of the Himalayan Mountains." This print is quite a good example of its style, and the standing figure on the right, of a native, nude to the waist, is a fine piece of scraping in pure mezzotint, and alone is enough to make one wish that the engraver, William Walker, had maintained the purity of the methods of his masters, T. Woolnoth and Thomas Lupton. This plate, published in 1854, is from a picture by Frank Stone, A.R.A., which is described as being in the possession of Lovell Reeve, Esq.

It depicts Hooker seated, receiving from a kneeling native trusses of various rhododendrons (including apparently Rh. Falconeri), and surrounded by other natives, some of whom may be seen collecting in the distance. The size of the plate is 22 × 18½, excluding the margin and inscription. William Walker was a Scottish engraver, b. 1793, d. 1867, who published a large number of contemporary portraits. It would be interesting to know if Lovell Reeve was a patron of rhododendrons.

Wishing to know if there was a state of this plate "before letters," I made enquiries at the British Museum and elsewhere, but without success. I ascertained that this print is not in the British Museum, but is in the Kew Herbarium.

The search resulted in the unearthing of the following five portraits of Dr. J. D. Hooker :—

1. T.Q.L. ; seated, looking to r. From a picture belonging to the Linnean Society. Photogravure, 11¾ × 10. Painted by H. Herkomer.
2. T.Q.L. ; seated, looking to l., vignette, with facsimile of autograph. One of the set of Ipswich Museum portraits ; lithograph, published by G. Ransome in 1851. Painted and engraved by T. H. Maguire.
3. H.L. ; seated at a table, working with a microscope. From a pen drawing. Photograph. Painted by T. B. Wirgman, in 1886.
4. A head, looking to r., vignette. Stipple. Proof before inscription. C. H. Jeens, engraver.
5. T.Q.L. ; seated, looking to l. Photogravure. Published by Walker and Cockerell, in 1897.

Can anyone add to this list ?

I understand that at the Natural History Museum, Kensington, there are a number of prints and plates illustrating rhododendrons.

CHARLES ELEY.

The Rhododendron Society Notes.

SOME NOTES ON FAILURES IN ATTEMPTS AT HYBRIDIZATION.

Contributed by Sir Edmund Loder, Bart.

Failures come often, and it may be of use to note down some of them.

I have often tried to cross hardy Rhododendrons with Rh. Edgworthi, but it is only rarely that I have got any result at all.

Many times I have crossed Rh. Fortunei with Rh. Edgworthi and Rh. Edgworthi with Rh. Fortunei, but, up to date, I have never had any fertile seeds.

Nor have I succeeded in raising a cross between Rh. Aucklandi and Rh. Edgworthi. (Rh. ciliatum crosses with Rh. Edgworthi easily enough.)

I have flowered crosses between Rh. Thomsoni and Rh. Edgworthi, but result was very poor. A small truss of nearly white flowers and without scent.

A cross between Rh. Ascot Brilliant and Rh. Edgworthi is not much better, a small pink truss without scent.

For many years I have been trying to get crosses with Rh. Boothi, and with one possible exception, these attempts have all been failures. I have tried it both ways with Rh. campylocarpum, but so far without result.

We have flowered here crosses between Rh. "Loder's White" (one of Mangles's many Rh. Aucklandi hybrids), and Rh. Aucklandi, with the idea of obtaining larger flowers. The result has been disappointing, the flowers being smaller than in either parent.

This has been the case in many attempts with Rh. Aucklandi hybrids.

Perhaps some members of our Society, more skilful than I am, will be able to teach us how to succeed where I have failed.

EDMUND GILES LODER.

The Rhododendron Society Notes.

REPORT ON LAMELLYN GARDEN.

CONTRIBUTED BY E. J. P. MAGOR.

The garden is situated some six miles from the north coast of Cornwall, about nine miles from Tintagel. It is a narrow wooded valley facing north-west, and sheltered from the east by rising ground above, and to some extent from the prevailing north-west wind by a high hill intersecting its mouth.

The soil is a heavy loam for the most part, in some parts very shallow, and overlies slaty shale, save in the centre of the valley where there is blue clay underneath.

Rhododendron culture here owes its inception to a sight of Rh. grande (argenteum), in flower in the Temperate House, at Kew, in the year 1900. The collecting of many Sikkim and other species from various sources followed, and first attempts at hybridization were made in 1905. In this, in the raising and culture of seedlings, in a continuous supply of Chinese and other seed, I owe more than I can say to the kindness and generosity of Mr. J. C. Williams.

The best plant in the garden is Rh. Keiskei, which is about 1½ ft. high and 2½ ft. across. It is a Japanese evergreen plant of compact habit, and pale yellow flowers like those of Rh. Triflorum ; but blooms much earlier, usually in February.

Rh. Veitchi and Rh. Nuttalli are not hardy here, and I fear that Rh. Oxyphyllum is hopeless. But of other tender varities, Rh. Championæ, Rh. Dalhousiæ, Rh. Edgeworthi and Rh. Ciliicalyx, have so far survived against a wall; and in the open Rh. Hybrid Countess of Haddington, Rh. Hybrid Fragrantissimum, Rh. Hybrid Sesterianum, Rh. Hybrid Exoniense, Rh. Boothi, Rh. Maddeni, Rh. Calophytum, and Rh. Formosum. Rh. Crassum and Rh. bullatum, the Chinese forms of Rh. Maddeni and Rh. Edgeworthi, seem to be hardier than their Sikkim relatives.

During the great gale of November, 1915, a very large elm tree fell on several of these sweet-scented varieties and on my only plant of Rh. Hookeri, and severely damaged them.

The following species flowered here for the first time this year :—

Irroratum forma, from Tali, ten to twelve flowers in a well-shaped truss, corolla openly companulate 2¼ × 2 inches, white tinged with yellow at the base and much spotted.

Adenogynum (5871F), six to eight flowers in a spreading umbel, corolla very widely companulate 3 × 2½ inches, white with crimson markings. A fine flower on a dwarf plant. Rh. Thomsoni and Rh. arboreum album set fine pods of seed to pollen from this.

Adenopodum, six to eight flowers in a loose truss, corolla pale rose unspotted, 2 × 2½ inches.

Bretti (1520W), six to eight flowers in a loose truss, corolla dull white, unspotted, 2 × 2½ inches.

Sphaeranthum (or ledioides ?), (11246F), a small leaved high alpine, ten to twelve flowers in a compact umble, clear rose, unspotted, ½ × ½ inch. A most attractive little plant with flowers resembling a daphne.

Rh. (4238W), reputed a form of Augustinii, flowered for the second time, and is the most beautiful lavender blue I have seen.

Rh. prostratum (5862F), flowered again, and I have a number of seedlings from it × fastigiatum, but it is yet too early to see whether the cross has taken.

The most noteworthy of the hybrids raised here are as follows :—

Campylocarpum × Aucklandi, usually with a pale lemon flower, but one plant produced this year flowers of a curious pink tinged with yellow.

(648AW) × Aucklandi (Caerhays seed) ; ciliatum × Keiskei (to flower 1917), argenteum hybrid × Fortunei, Aucklandi × bullatum (this has a poor constitution), maximum × houlstoni, ambiguum × Keysi (to flower 1917), Keiskei × arboreum, Kewense × decorum, Keiskei × lutescens, Cornubia × Sutchuenense, cinnabarinum × crassum, Kingianum × Mrs. Kingsmill (campylocarpum × Aucklandi), arboreum × Sutchuenense, arboreum album × campylocarpum, glaucum × Boothi, Lepidotum × Boothi, Keiskei × fastigiatum, Mrs. Butler × Augustinii, Decorum × fictolacteum (Verrieres seed, and a poor lot, which may not survive), Yunnanense × Cinnabarinum, and campylocarpum × Mrs. Butler.

Seedlings of Rh. Wighti, from seed kindly sent by Miss Mangles, are growing well, though slowly.

Seedlings of Ungerni (Tregrehan seed), proved difficult to raise, being very liable to damp off, as also were seedlings of lanatum (Caerhays seed).

Notable hybrids here from other sources are :—

Blood-red arboreum × Thomsoni (Caerhays), Loderi (Leonardslea), though I fear this is dying ; and Smirnowi × fictolacteum, Kewense × fictolacteum, Harrovianum × lutescens (all from Verrieres).

Some parts of the garden are very damp, and many plants rot at the root and die, chief among them this year being the only plant of Rh. longistylum (1204W).

The use of moorland peat, since discontinued, would seem to be responsible for many of these deaths.

Rabbits attack a number of rhododendrons here, especially when first planted. Rh. rupicolum (5865F) always a difficult plant, has been the worst sufferer, but they will also eat oleifolium, lanatum, hirsutum, ferrugineum, tenellum, serpyllifolium, trichocladum, fastigiatum, Keiskei × arboreum, ciliatum × Keiskei, and rubiginosum.

E. J. P. MAGOR.

The Rhododendron Society Notes.

NOTES ON THE GARDEN AT LOGAN, WIGTOWNSHIRE, SCOTLAND.

Contributed by Kenneth McDouall.

The Rhododendrons now growing here contain most of the Indian species in cultivation, some hybrids, and a good many Chinese varieties ; the former are still in their infancy, and the latter, grown from Wilson's seed, are quite young plants. All however are growing remarkably well, and many have already flowered.

That these plants will grow and do well in this district there is little doubt, provided they are guarded against the evils, which unless protected from, would seriously damage their health ; the first, if there is wind, they must have comparative shelter from the violent gales which blow during the winter months from south-west, west, and north-west, and in the spring, east and south-east winds must be kept off. Here, where we have the sea all round us, only a mile distant to the west, and a mile away to the east, it is not possible to find a spot as sheltered as one would wish. Then late frosts which in some years occur in April and May, fortunately not often, do much damage to the young growing shoots of the Rhododendrons.

Drought also must be guarded against, especially when the plants are young, and in recent years we have experienced some dry summers here. We have to protect the plants too against roe-deer, as the bucks single out these Rhododendrons to rub their horns on, and have completely destroyed several plants in this way. They will also eat the leaves, and I have seen young Rhododendrons completely stripped of their leaves by roe-deer, and never able to recover, though the wood and buds had not been touched.

For some time I had been looking for a new site for my Himalayan Rhododendrons, where the troubles that I have just mentioned would be minimised, and felt that if they were to be moved at all the time had arrived to do it. They are now in their new quarters, moved there last November, where I think they will have many advantages over the old. I hesitated long about moving them, because they were doing so well, yet I was not quite satisfied, the situation was too low, moreover, rock was near the surface, and the soil was apt to become dry in summer, while in spring, late frosts sometimes caught the young growth. I felt there should be a remedy for these things. Before deciding upon the new site I transplanted there two Rh. Aucklandi, leaving the other where it was ; this species was the only one which always lost some of its growing shoots. The two plants received no check, while the other one suffered as usual. The success of this experiment decided me to move all the Indian Rhododendrons with the exception of Rh. arboreum. The new site is on a steep hill slope facing north-east, and is a clearing in a wood. The soil is a good sandy loam, well drained, yet retensive of moisture ; the atmosphere is moist and more than a few degrees of frost should not bother the Rhododendrons here ; the early morning sun will not shine on the plants after a night of frost. The place, too, is sheltered from the wind to a great extent though not so much as I would like. Here

Indian Rhododendrons should flourish undisturbed almost as well as on their own mountains.

To mention a few of the Himalayan Rhododendrons that usually flower well here most years. Rh. Falconeri had 48 blooms last year. Rh. campylocarpum, of which I have three plants, the flowers vary very much, one being magnificent, the other two not nearly so good either in colour or form. Rh. Keysii is very free flowering, I removed 350 bunches of seed heads last year, with six to eight pods on each ; the plant is 6 ft. high. Rh. arboreum, these are older than the others and always flower well, and are truly beautiful with their many shades of bright colours and handsome foliage. Rh. Kewense in its best form is a splendid Rhododendron, so is Rh. Gauntletti and Rh. Manglesii. Rh. Edgworthi flowers well, it is a beautiful thing and very sweet-scented. Rh. fragrantissima is as good. Rh. "Countess of Haddington" is remarkably free to flower, but this sometimes gets its buds frosted so that they do not all open. Rh. Dalhousianum, I think will succeed in its new quarters, for it opened its flowers well two years ago. One Chinese Rhododendron Rh. decorum is most attractive. Rh. brachycarpum, from Japan, less so.

I should be interested to know anything of Rh. auriculatum, I am told that this species from China flowers in the autumn. I know nothing of it, but have got one healthy young plant.

KENNETH McDOUALL.

February, 1917.

The Rhododendron Society Notes.

CASTLE KENNEDY, WIGTOWNSHIRE.

Contributed by The Right Hon. Sir Herbert Maxwell, Bart.

This fine demesne, in which stands the modern mansion of Lochinch, the residence of the Earl of Stair (now a prisoner of war), embraces two large fresh-water lochs near the sea inlet of Loch Ryan. The grounds are very extensive ; previous to the war about seventy acres were kept under mowing machines. The isthmus between the two lochs, a ridge of light gravelly loam nowhere more than 100 feet above sea level, has long been noted as an arboretum, chiefly of coniferous trees. It is here that the greater number of rhododendrons have been planted, although hundreds of fine specimens of Indian species, as well as some hybrids, are scattered along the shores of both lakes and through the surrounding woods. The soil and climate are most favourable to their growth, although much of the ground is too much exposed to wind to allow of their full luxuriance. The display of blossom in spring is remarkable, and promises to be exceptionally profuse in 1917.

The collection was begun about sixty years ago, and is more noteworthy for the size and number of the plants than for the variety of species. Rh. arboreum in its various forms greatly preponderates. This species was propagated in great numbers by the late Mr. Fowler, for very many years in charge of the gardens and grounds, and occurs in hundreds in all conditions of light, shade and wind exposure. Rh. campanulatum and niveum seem to have been among the earliest planted, while the less frequent species, Rh. Thomsoni, barbatum, Batemanni and nobile were probably contributed by Sir Joseph Hooker, who took much interest in the arboretum in its early years.

Unfortunately the plants have been set so near each other that, in many places, they have interfered with their proper development. They now present many distressing problems, calling for stern resolution to sacrifice splendid growths in the interest of others of equal or superior merit. Nor does the conflict lie only among rhododendrons. Conifers, Eucalyptus, Maples and other choice trees, Eucryphia, Pittosporum, Arbutus, Desfontainea, and many other charming shrubs, have been allowed to form a jungle, competing with rhododendrons, and with each other. A good deal has been done of late years, both by sacrificing fine plants of Indian rhododendrons, in order to give room to others, and also by sweeping away masses of Rh. ponticum, which here, as in so many other places, has overrun an undue amount of ground. But this work has been greatly retarded or suspended owing to shortage of labour, in consequence of the war.

Considerable numbers of seedlings have been raised from the better species in the grounds, and thousands of these are growing vigorously in the nurseries in charge of Mr. Hoggartu, forester, and Mr. Cruden, gardener, affording a convenient and desirable reservoir for exchange.

I have measured, in November, 1916, some of the larger specimens. The heights given are approximate within a few inches, one way or another. It is difficult, even with a long rod, to get the exact height of a dense growth such as rhododendrons:—

SPECIES.	HEIGHT.	GIRTH OF STEM.
RHODODENDRON ARBOREUM	21 ft.	23½ ins., straight single stem.
,, ,, (red) ..	20 ft. 4 ins. ..	Five stems, thickest 25 ins.
,, ,, (pink) ..	18 ft.	Single stem, 28 ins.
,, ,, (white)	18 ft.	Single stem, 26½ ins.
,, ,, (white)	18 ft.	Three main stems, 31, 27½ and 23 ins.
RHODODENDRON CINNAMOMEUM ..	20 ft. 4 ins. ..	Not measured.
,, ,, ROSEUM (so named by Gill).	12 ft., a very beautiful blossom.	17 ins.
RHODODENDRON BARBATUM	17 ft.	Many stems.
RHODODENDRON FULGENS	8 ft. 9 ins. ..	Many stems.
RHODODENDRON THOMSONI	10 ft. 10 ins.	Profuse flowerer.
RHODODENDRON NIVEUM	16½ ft. ..	27 ins. below fork, at 1 ft. from ground.
,, ,, ...	15 ft. 6 ins. ..	Several stems.
RHODODENDRON BATEMANNI	17 ft.	Four stems, main one 32 ins. at 2½ ft.
,, ,, ...	13 ft.	Several stems, exposed situation.
RHODODENDRON NOBILE	17 ft. 4 ins. ..	Ten stems, largest 17 ins. at 3 ft.
RHODODENDRON CAMPANULATUM ..	20 ft. 5 ins. ..	24 ins. below fork, at 1½ ft.
,, ,, ..	20 ft. I think this fine plant is a hybrid campanulatum × arboreum or, more probably campanulatum × cinnamomeum.	Four main stems. Girth below fork 54 ins., main stem above fork 26 ins.

The Rhododendron Society Notes.

MONREITH, WIGTOWNSHIRE.

Contributed by The Right Hon. Sir Herbert Maxwell, Bart.

The climate of this district is very favourable for rhododendrons, the land being intersected by the sea in several directions, and the soil is suitable, generally light loam, with plenty of peat and sand available. The chief adverse conditions are violent winds and late spring frosts. Against the former we marshal such defences as we may ; against the latter no precautions avail.

The season of 1916 has been very propitious for growth. The spring, though cold and backward, was completely free from frost later than 28th March. On that date the blooms of Rh. barbatum, arboreum, præcox and Nobleanum were destroyed, but no damage was done to the young growth of these or any other species. It was very different in 1915, when a May frost blackened the young shoots of these and other species.

Of Wilson's Chinese seedlings we have as yet only flowered the following species here :—

Rh. pachytrichum, opened on 1st March, pretty truss of rosy blossoms, foliage poor.

Rh. Davidsonianum, opened 10th May, will probably be attractive when larger.

Rh. lutescens, of indifferent merit, without promise of the ornamental bark of Rh. Triflorum.

Rh. Augustini, quite pretty, promising well when it increases in size, but the flowers appear only two or three together, not in a truss. Said to be variable in colour ; ours was a lively rose-lilac.

Rh. intricatum, flowers small, but numerous, and attractive from their violet colour.

Rh. ambiguum, not desirable, corolla washy yellow.

Rh. micranthum, opened on 10th July. Flowers white in small globular trusses, individually insignificant, but so abundant as to make this a desirable shrub, blooming when other rhododendrons are over, except the American Rh. maximum and viscosum.

The following experience seems worthy of note. Hitherto, we have reckoned among the many virtues of the genus Rhododendron that all species were immune from attack by hares and rabbits. Having grown Rh. præcox for many years in ground fenced against these rodents, in the autumn of 1915, we planted half a dozen fine young bushes, three feet high, in a woodland opening. Hares are by no means numerous ; the farmers take care that they should not be so ; but such as there were in that wood made hearty suppers off præcox. That hares were the marauders, not rabbits, was evident from the height at which the foliage had been devoured ; nor was it the work of roedeer, for the browsing was from the bottom upwards, the extreme tops being left untouched.

The Rhododendron Society Notes.

In planting rhododendrons out in grass, we find it essential to keep the soil free of grass and weeds for some distance round the stem, until the shrub has grown strong and dense enough to destroy the herbage under its own shade. Where the grounds are extensive and the plants numerous it is difficult to get this attended to, especially in these days when labour is so scarce. We have, therefore, adopted with advantage the plan of placing a heavy mulch of cut grass round the young shrubs, *taking care not to let it touch the stems*. This serves the double purpose of preventing fresh growth of grass, and of screening the roots from scorching sun.

RHODODENDRON BATEMANNI. I have given the dimensions of two fine specimens of this grand species at Castle Kennedy, where it was probably sent by Sir Joseph Hooker, about fifty years ago. It is the earliest of all the large-leaved species to flower, except the hybrid NOBLEANUM. It began to flower in January, 1916, and when I saw it in February, it was a splendid sight, covered with *crimson* bloom. The species was described and figured in the "BOTANICAL MAGAZINE," Vol. ., p.

RHODODENDRON NOBILE. This species also appears to have been sent by Sir Joseph Hooker to Castle Kennedy, but I can find no reference to it in any work on Indian plants. It flowers in late April and May, bright carmine. The foliage alone would justify the specific title NOBILE, for it is very rich. The leaves set on green petioles about half inch long, and rounded at the base measure from 5 to 7 inches long and 1½ to 2 inches broad; upper surface rather light green, not shining, with shallow transverse ripple marks running from the midrib to the margins; the backs clothed with pale fawn tomentum. Many seedlings have been raised at Castle Kennedy from the original plant; but it must always be doubtful whether the ovaries have not been affected by the proximity of hundreds of other plants of several species flowering at the same time. Two, which I have, however, now 3 or 4 feet high have the characteristic foliage, but have not yet flowered. In 1915, Lady Stair sent flowers and foliage of Rh. Nobile to Mr. Watson, of Kew, for identification. In reply, Mr. Watson wrote that there were specimens of it in Wallich's Herbarium, as named by him, but some one else made it out to be a natural hybrid between Rh. campanulatum and Rh. barbatum. It was collected wild in Bhotan. If it is a hybrid, it is strange that it should come true from seed.

Mr. T. Smith, of Newry, seems to have a large stock of RHODODENDRON CILIATUM, at a moderate price, viz., 12 for 30/-. Those which he sent me are very fine plants.

Last year I obtained from Messrs. Thyne, of Dundee, a herbaceous plant which is not commonly offered, viz., ANEMONOPSIS MACROPHYLLA, at 1/- each.

SOME NOTES ON RHODODENDRON ARBOREUM AND ITS CULTURE IN VARIOUS PARTS OF THE BRITISH ISLANDS.

CONTRIBUTED BY LIEUT.-COMMANDER J. G. MILLAIS.

It is probable that many Englishmen of the old " John Company " saw and admired this species in the wonderful forests of tree rhododendrons in the Sikkim Himalayas and the Neilgherries before an English Officer sent seeds home to the botanist Smith.

There seems to be no record of what Smith did with his consignment of seed, but it is certain that Wallich sent seed to Mr. Shepherd, of Liverpool, in 1814, and from this seed numerous plants were raised in conservatories, and these in time were distributed. A fresh consignment came from Colonel Sykes to Edinburgh about the year 1830, and plants were sent to Singleton, Swansea, which formed a fresh centre of distribution in Wales. It was, however, mainly owing to the efforts and explorations of Sir Joseph Hooker (1849-1860), that English gardens owe the abundance of this species in Western England and Scotland.

In all the mild moist-laden atmosphere of certain parts of the Western counties of England, Wales, Ireland, and Scotland, where the soil is suitable, Rh. arboreum and all its numerous varieties form one of the backbones of any collection of flowering trees and shrubs ; and where it is happy, and a choice selection of the best varieties is used, it will give a continuous pageant of bloom from late January to mid April. In these localities it is a plant of surpassing beauty, ease of culture, and noble port, even when out of flower. Cornish gardens alone owe much of their success to this fine species, which in very suitable localities seeds itself with some freedom.

Curiously enough the finest plantations of RH. ARBOREUM which I have seen are not situated in this county, but in the somewhat wind-swept coast line of Western Wigtownshire. Some seventy years ago the great grandfather of the present Earl of Stair met Sir Joseph Hooker in London, and invited him to visit his home in the North. Sir Joseph was delighted with what he saw there, and at once observed the suitability of the place with its peaty soil and mild climate for Himalayan Rhododendrons.

He advised extensive planting of Rh. arboreum. The Earl of Stair obtained seed and raised an immense number of seedlings which in a few years he planted out in the grounds. To-day there are no less than seventy acres devoted to shrubs and trees, and the majority of these are RH. ARBOREUM, interspersed with a few other species, such as RH. CAMPANULATUM, RH. BARBATUM and RH. THOMSONI. The sight of this immense garden in flower in April almost baffles description.

The object of this short note, however, is not to appraise or study the effects which are gained by the use of this valuable rhododendron in the gardens where it is quite happy, but rather to offer some suggestion as to its size and treatment

in the gardens of those, like myself, living in a less favourable climate, have to use some ingenuity in its cultivation, and some selection in the varieties which we grow or try to succeed with.

It is true that the species may be well grown even in the " dry belt " from Sussex to Northumberland. This statement, however, requires a good deal of modification. If we take a line roughly from East Devon to East Cumberland, we come into an area of England where the climate is everywhere (except along the actual south coast line), much colder and drier than to the west. Except too on certain high ridges such as the green-sand belt from Hants to Dorking, we experience nearly every year in March and April the frosts that ought properly to have occurred in January to early March. Roughly speaking, therefore, Rh. arboreum has to endure with us, as a rule, such unfavourable conditions just at the very season when it is putting forth its flowers or starting its young growth, i.e., March to April. Wherefore, it is much easier to succeed with the species at Muncaster Castle, in West Cumberland, where it grows well every year, and is hardly ever cut like it is much further south, say at Horsham, in Sussex, where we often get a drought and 12° of frost on April 10th. Another great disadvantage is that in many seasons, certainly of late years, we have droughts in July, August, and September, which are seldom experienced in the western counties, and plants of Rh. arboreum not situated in very choice positions and heavily mulched with decaying leaves suffer accordingly.

However, with all these drawbacks, we have to swallow our disappointment when our plants get " cut " or dried up in two seasons out of every five, and will persevere with some measure of success. So great too is the recuperative faculty of this noble rhododendron, that if we are so fortunate as to get a really good growing spring once in every three years as we generally do, that loss of fitness is soon made good, and our plants recover, although they may not respond with quite so much vigour as in the gardens of our western friends.

To those who live in less favourable areas and who are anxious to experiment with the different varieties (or natural-hybrids) of the true species, I append a list of those which are now in cultivation with remarks on the suitability or difficulty of culture in cold or " dry-belt " gardens. Reference is only made to the flowers, and to the hardiness or otherwise of the several varieties.

Rh. arboreum (type). Colour of flowers varying from white to deepest crimson-scarlet. The white form, var. album, is not one of the hardiest or the easiest to grow. When mature it suffers much from overflowering, and should be freely dis-budded. Of this colour the variety Var. cinnamoneum is the hardiest and easiest to grow and does fairly well even at Kew. Most of the pinks, such as " Lady Falmouth," " Rosamund Millais," crispum, roseum, Wearii, and a host of others unnamed, are hardy and easy to grow. The same may be said of those of deep rose colour.

When we come to the red and deep-blood reds, the case is altogether different, for with few exceptions these are very tender, and it seems to be unfortunately the case that the finer the variety the more delicate it is. Mr. F. D. Godman has a beautiful deep-red that I should call hardy, for it never seems to be cut in his garden at South Lodge, Horsham, where it has stood over twenty-five years.

On the other hand, all the fine varieties sent out by Gill, Reuthe, Smith of Guernsey, and other nurserymen are, except with protection and very great care in selection of site, not even winter hardy. On the other hand the variety KERMESINUM, which many good judges consider the best of all, makes its growth late, and seldom gets cut in spring, although it too is very winter tender.

Personally, after succeeding with it for years, six good plants which I possessed are now destroyed. This should not, however, deter others who possess better and more sheltered gardens than mine from growing it with success. Up till now I have seen it well grown in my neighbourhood by Sir E. Loder, Mr. Charles Nix, and Colonel Stephenson Clarke.

It will stand 20° of frost, but below that we must expect to lose it. The "TREGOTHNAN" variety I find equally tender.

RH. ARBOREUM var. ANDERSONI, good rosy-red flowers. Hardy.

RH. ARBOREUM var. BLUSHING BEAUTY. A very fine variety raised by Gill, with large blush flowers. Hardy.

RH. ARBOREUM var. CAMPBELLIÆ. Flowers purplish-rose. Fairly hardy.

RH. ARBOREUM var. CARNEUM. Blush-pink flowers. Hardy.

RH. ARBOREUM var. "Mrs. Henry Shilson." A very popular variety with handsome long foliage and large rather bluish-pink flowers. This variety is by no means hardy, and except under the best conditions difficult to grow.

RH. ARBOREUM var. NEPALENSE. Bright red flowers, rather tender.

RH. ARBOREUM var. NIGRESCENS. Blackish-maroon flowers, tender.

RH. ARBOREUM var. NILAGERICUM. Flowers generally deep-rose, tender.

RH. ARBOREUM var. OCHRACEUM. Good pink flowers. Hardy.

RH. ARBOREUM var. PUNICEUM. Red or purplish-red flowers. Hardy.

RH. ARBOREUM var. "SIR CHARLES LEMON." A very fine variety with very dark leaves with orange-brown pubescence beneath and flowers of the purest white. Certainly one of the best varieties we have and fairly hardy.

RH. ARBOREUM var. WEARII. Perhaps the finest pink variety yet raised (Smith, of Penjerrick). Hardy.

RH. ARBOREUM var. WINDSORI. Medium crimson flowers. Hardy.

RH. ARBOREUM var. ZEYLANICUM. Rich pink flowers. Very tender and a slow grower. This and the next named will probably be regarded as new species.

RH. ARBOREUM var. KINGIANUM. Brilliant crimson flowers. Very tender.

The Chinese form of RH. ARBOREUM, namely, RH. DELAVAYI, is also tender in the home counties.

In this short note it is not my intention to discuss the innumerable hybrids that have been created between RH. ARBOREUM and other species and hybrids. The majority of these are now valueless, much better things have taken their places, but it is enough to mention three which have proved a real boon to British gardeners who live in cold places where moisture is always fitful. These three hybrids are "essentials" in every garden where rhododendrons can be grown.

The Rhododendron Society Notes.

Rh. campanulatum var. Campbelli. We need not discuss the origin of this fine plant, which is probably a natural hybrid between Rh. arboreum and Rh. campanulatum. Its fine leaves and large truss of lovely pink flowers places it at once in the front rank of hardy shrubs. It flowers in April, and seems quite hardy.

Rh. bodartianum (R. Smithii album of Kew). Those also who cannot grow any white Arboreum will find this a colourable substitute. It bears large trusses of white flowers in April, and never gets its young growth cut.

Rh. Jacksoni (Syn. venustum). A hybrid between Rh. arboreum and Rh. caucasicum. A lovely dwarf pink flowered shrub for the front edge of borders. Quite hardy.

Those who desire to plant this shrub (which is extremely cheap), in masses, will do well to break up the effect with such hardy dwarfs as Rh. Jacksoni var. album or Rh. "Handsworth Early White," and if red is required, Rh. "Handsworth Early Red." The two last named are perfectly hardy, and the whole group combined with a few plants of Rh. arboreum var. Wellsianum (red), and this low hardy dwarf will form a brilliant sight in April, in places where the more tender varieties of Rh. arboreum will not flourish.

J. G. MILLAIS, Lieut.-Commander.

The Rhododendron Society Notes.

NOTES ON THE GARDEN OF RIVERHILL, SEVENOAKS.

Contributed by Lieut.-Colonel J. M. Rogers.

As I have been soldiering for the past two years, until the last three months, and have only seen my garden since October, I fear that I cannot contribute anything of general interest.

I have here a good many Himalayan species between seventy and eighty years old, including Falconeri, niveum, barbatum, Thomsoni, lanatum, fulgens, companulatum of several varieties, Hodgsoni and arboreum. Several of these have died recently, and I am struck with the deterioration of many others during the last two years.

It looks to me as if this period, seventy to eighty years, was about the usual life of these plants in this country, though I know nothing of their longevity at home.

The principal enemy here is drought. Late frosts, though spoiling the show of bloom, do not seem to me to damage the plants.

In 1916, Dahuricum was in full flower about 15th January, and præcox at its best at the end of the month. These had an exceptionally good innings, as there was not frost during their flowering time.

Aucklandi has three blooms in the open for the first time here, the plant is about ten years old. A home-grown seedling of Mimosa dealbata also flowered profusely for the first time, and did not suffer from the blizzard of 27th March, which caught it in flower.

Of Chinese species the following flowered:—lutescens, Harrovianum, concinnum and decorum (Spooneri). None of these are of much account, and the last a distinct disappointment, as it is very inferior to Fortunei at present, and the scent is hardly perceptible.

I have a good many of Wilson's latest to exchange if anyone wants some, as my nursery has got very congested from want of labour, and I should like to know where I can get several Intricatums.

J. M. ROGERS.

The Rhododendron Society Notes.

NOTES ON RHODODENDRONS AT ROSTREVOR HOUSE, CO. DOWN.

Contributed by Lieut.-Colonel Sir John Ross of Bladensburg, K.C.B.

I regret I did not understand that the first set of notes were to be sent to the Rhododendron Society at the end of last year. I imagined they were not due till the end of this year, and it is only now that I have found out my mistake. I regret it the more, since not only have I deprived myself of the pleasure of preparing these notes in time, but also because it is not easy to put something hastily together that may be of interest to the members, and it is impossible to give an account of any garden recently visited, except my own. These notes will therefore, I fear, be of little value.

This place is well sheltered, and the soil is favourable to the cultivation of all trees and shrubs, and as it contains no trace of lime it is well adapted to Rhododendrons. Generally speaking we enjoy a mild winter and often have no more than four to six degrees of frost, and then only for quite short periods. We nearly always have however disagreeable spring frosts, and these are too often destructive and troublesome. I always fear the weather of March and April more than that of the dead of winter, and it is then that the plants seem to suffer most. Our summers are never very hot, and our autumns are really fine and enjoyable, and this helps to ripen the year's growth satisfactorily. But the year 1916 was not a good one, and was an exception to our usual conditions. We had a cold summer, a very wet and miserable autumn, and now a most severe winter, nothing like it I think since 1894-95. In consequence, we have little flower now, the winter rhododendrons have no chance of showing their beauty. Rh. mucronulatum pushes out an occasional bloom when the weather permits, and Rh. nobleanum is so pinched and starved that it only produces little points of red colour, looking more like undeveloped rose buds than trusses of rhododendron flower. Hamamelis mollis is one of the few plants that bravely exhibits its bloom despite the cold and the inclement weather.

Notwithstanding the unfavourable conditions prevailing, the rhododendrons have all done fairly well, and fortunately I have lost none. Rh. barbatum, ciliicalyx, Dalhousiæ, Edgeworthii, lanatum, etc., reputed somewhat tender in some places, have up to now shown no signs of distress. I had Rh. Nuttallii out for some years, but as it was not growing satisfactorily, we luckily brought it in and put it in a large pot, and it has not been subjected to the present frost. I observed that some of the rhododendrons which flowered well in former years, and which appear to be in perfect health, did not flower properly or at all, last season. Among them I may mention Rh. intricatum, Keiskei, Ririei, Souliei, and spinuliferum, also I think Rh. Thomsoni and rubiginosum, which is usually smothered in bloom. I observed the same thing with a fine specimen of Leptospermum Nicholi, now some ten feet high, and which is always covered with red, giving the impression, if looked at from a distance, as if it were painted with bullock's blood. But, generally speaking, everything else flowered in the usual way, and perhaps Rh. Keysii, micranthum, Roylei and yunnanense showed more bloom than in ordinary years.

There are a certain number of the newer rhododendrons from Central China here, but they are many of them still small, and I am not in a position yet to say much about them, except that as far as foliage is concerned, some of them seem to be very remarkable and beautiful, and will, undoubtedly, be a great and pleasing addition to our garden in future. Some species of this group, introduced earlier, like Rh. SUTCHUENSE, flower in March, when we are troubled with spring frosts, and in consequence I have but an imperfect knowledge of the bloom, but as the plants grow it is to be hoped that the inconvenience may diminish, and I have seen enough to make me anxious for a good view of these plants in their full dress. Rh. Augustinii flowers later, and this is a happy circumstance, as I look upon it as quite one of the best that have come to us from Central China.

Some few years ago I got Rh. CEPHALANTHUM from Messrs. Seidel, from near Dresden. It is a very desirable little species, somewhat after the nature of Rh. ANTHOPOGON, but differing from it both in flower, which is pure white, and in leaf. I do not know where else it can be got, and if, as I am led to believe, it is rare in cultivation, it is to be feared we are not likely to get it again, at least from Germany. It is to be hoped we may obtain seed from it.

One of the best plants here is a specimen of Rh. GRIFFITHIANUM, which is now thirteen feet high, and the same through, and this is really a fine sight in the flowering season, and also when the young growth appears upon the plant. The bloom is well known, like a cluster of great lilies with a slight aromatic scent and more beautiful by far I think than any of the numerous hybrids which have been raised from it, and which are so justly esteemed. We had a good deal of trouble with this plant when it was first put out and when it was some three feet high. Though placed in a sheltered dell our springs were too harsh, and it was repeatedly injured. We then put a sort of muslin tent over it from, say, February to May, and gradually it increased in size and in vigour, and when it got some six or seven feet high it was quite strong enough to fend for itself. It is now left without any covering of any sort, and it flowers regularly and plentifully.

Rh. MADDENI and its two varieties, CALOPHYLLUM and JENKINSII, live here very happily. I have not had the type for long, and it is still small, but the varieties have been here longer and give out their sweet scent when in flower. Rh. camelliæflorum is another of my special favourites, and so is Rh. lepidotum. There are also some of the Edgeworth hybrids that seem quite at home, and I may mention that Rh. SHILSONI (barbatum × Thomsoni), flowered here for the first time last year.

I am interested in two rhododendrons which appear to be somewhat alike, and I am not sure whether they are different species or not ; they are, however, not the same thing, and they may be only varieties of the same species. One was bought under the name of Rh. KINGIANUM, which comes from Manipur, and the other was raised from seed that came from Ceylon, under the name of Rh. ZEYLANICUM (or more properly Rh. ROLLISSONII). The leaves of these two plants are very similar, but quite distinct from any other rhododendron I have seen. I do not know if these two species resemble each other, and, therefore, whether my Rh. Kingianum is true to name or not.

There is here a small specimen of Rh. Falconeri, and a larger one of Rh. eximium, which is held by some to be a variety of the former, and which I think is one of the best of the genus. It flowers in April, and appears to make no further movement until July, when it begins to push. The young growth is then covered with a brown tomemtum that remains on the plant until November, giving it a very remarkable and beautiful appearance and making it a conspicuous object all through the autumn.

I have never flowered Rh. ovatum, Planch (to distinguish this rather rare Chinese species from a more common hybrid of the same name), though I have had the plant for a good many years ; it seems to grow slowly, and yet the specimen I have is quite healthy, but perhaps it is placed in too dry a spot which may account for its being more backward than ought to be the case. Its young growth however is very striking and pleasing, being of a purple violet colour, and this compensates to some extent for the want of bloom, and at a distance gives the appearance of flower.

The two Caucasian Rhododendrons Smirnowi and Ungerni are both here ; the latter has the strange and rather disappointing peculiarity of flowering after it has made its growth, and in this respect it differs from every other species. The leaves of both are handsome and well covered on the undersides with a thick white woolly wad. There is also a hybrid here (Smirnowi × ponticum, I think) ; it has the appearance of the ordinary ponticum or Rose-Bay, but the flower is red like that of the other parent.

There is one other rhododendron I should like to allude to, and I only do so because I do not know what it is exactly. It came here without a name, and is evidently one of the many varieties of Rh. arboreum. Its foliage is identically the same as that of var. cinnamoneum, and I thought it was it, but the flower is red not white. It is not var. nilaghiricum, which has, as I think, a far finer colour than any other form of that species.

If I may in conclusion make an allusion to a plant, not a rhododendron, which appears to be hardy in a sheltered district, and to be well worthy of a place where it will live, I should like to mention Prostanthera lasianthos, coming from Australia. I venture to do this as I do not think it is sufficiently well known. The plant here is some thirteen feet high, and in July it is a sheet of bloom. It is a handsome evergreen with sweet smelling leaves, flowers in closely packed clusters, white, each a third of an inch across, with a well-marked purple throat. It has been here about ten years, and as it appears to be uninjured, up to now, by the present severe weather, although planted in the open, I hope it may be really hardy and more generally cultivated in favoured districts than has been the case before.

JOHN ROSS OF BLADENSBURG.

5th February, 1917.

The Rhododendron Society Notes.

NOTES ON CHINESE RHODODENDRONS AS GROWN IN CORNWALL.

Contributed by P. D. Williams.

In these few notes I do not propose in any way to give botanical detail, but merely to jot down some of my personal impressions of the garden value of a few of the Chinese Rhododendrons. In some cases this impression will be the result of seeing several years flowering, but in others the experience is much more limited.

Large Leaved Forms.

(To be at their best these ought to have absolute shelter from wind.)

Among them Rh. calophytum seems to have the handsomest flower, and is probably one of the most remarkable of all Chinese rhododendrons. It flowers in Cornwall in April. The truss is large (I think I have counted twenty-eight bells), somewhat pyramidical in form, but hollow at the top. The attractive rosy-red bells have in some forms a heavy crimson blotch, and the long pedicels are scarlet. It is a plant apparently of good habit, and a striking one even when it is not in flower. It flowered in Cornwall when six years old, which is early for the large type of rhododendron.

Rh. sutchuenense. This is another with a large leaf. In Cornish gardens it flowers usually in March. In my experience it is much more variable in colour and markings than calophytum, and the truss is flatter. Some forms have a very heavy crimson blotch, and others are speckled with green. In colour the bell itself varies from pale mauve to pink or even white. The flower seems to be very susceptible to frost, although it is often under the foliage. The plant is of low spreading habit, and flowered even more quickly from the seed than calophytum.

Rh. auriculatum. This seems to be much the latest grower and flowerer among the Chinese rhododendrons, sometimes not commencing its growth before September. The scented truss is very loose, and the pink or white bells quite large. It seems to be on the lines of Rh. Fortunei, and the plant should be valuable as a breeder. The young growth is most attractive. It was slow to begin flowering with us.

I will now take some of the *small flowered varieties*, which seem likely to be at their best grown in clumps, rather than as individual plants. In almost every case these will strike freely in July or August, and it appears desirable to select a good form, and then to increase one's plants to form a group.

Rh. lutescens. Although hardy in Cornwall, it flowers and starts into growth so early that it is doubtful if it will prove to be useful in colder districts. The flowers are yellow, somewhat on the lines of Triflorum, but varying considerably in shade of colour. The young growth is very beautiful, in some forms being quite crimson. The habit of the plants is straggly, inclined to be upright. In a group it is quite desirable in the milder parts of England.

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Rh. polylepis or Harrovianum. This appears to be a poor thing, very upright in habit, flowers small, purple. It flowers in April, and seems quite hardy.

Rh. longistylum seems very near to micranthum. The flowers in small trusses, white, and very early in February. The habit and leaf are nice, but the early flowering makes it unlikely that it will be a successful plant for gardens.

Rh. Yunnanense and Rh. chartophyllum præcox are apparently much on the same lines. They are extremely floriferous, the forms varying from mauve with crimson spots to white with crimson blotch. Plants upright, fairly rigid and semi-evergreen. They are at their best in May, and undoubtedly are a great acquisition. They seem to be more successful in the sun than many rhododendrons, but are free growers anywhere.

Rh. Davidsonianum is closely allied to the above, but is nearly evergreen, and the mauve bell seems to be rarely spotted or blotched.

Rh. Augustinii flowers are larger than Yunnanense, and vary from pale mauve to dark lavender purple. Some of the flowers are most attractive, but perhaps want careful placing. The plant is evergreen, and for habit is much on the lines of Yunnanense, but not quite so rigid. It flowers in May, and good forms are well worth growing.

Rh. oreotrephes (see illustration in R.H.S. Journal, for October, 1916, p. 33). This again is a good garden plant. The mauve flowers are not so striking as the remarkable glaucous foliage which in some of the forms is quite unusual. The habit of the plant is good.

Rh. hanceanum is a low straggly evergreen shrub of no great merit. The flowers, of a poor ivory-white or dull yellow with pink tinge, are somewhat absorbed by the protruding stamens. I have heard of a good yellow form, but I have not seen one.

Rh. trichocladum. Deciduous. The small yellow flowers are not in any way remarkable, but the grey hairy leaf (often with crimson blotches), is very attractive in the young state.

Rh. moupinense flowers in February, too early to be a valuable plant, but if it escapes frost it is most beautiful. The flowers are scented and vary very much in colouring. Some forms have almost crimson buds which fade to nearly white, others are white with yellow, crimson, or even purple spots. The plant is hardy, but of a poor habit and very brittle.

Rh. ovatum is quite one of the most attractive of the small flowered rhododendrons. The flowers in my experience are pink with small spots, but I believe there are other forms. The evergreen leaves and the young growth are both very fascinating. The habit is good. I believe it was introduced by Fortune, but it had become so scarce, and it is so attractive that its re-introduction is most welcome.

P. D. WILLIAMS.

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BY

J. H. MANGLES.

All communications regarding the publications of the Rhododendron Society should be made to Charles Eley, East Bergholt, Suffolk.

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The following articles on Rhododendrons were contributed by the late Mr. J. H. Mangles to the GARDENERS' CHRONICLE and to the GARDEN between 1879 and 1884. A few not from his pen, have been added, as they relate to the same subject. They have been reproduced almost without alteration, verbal corrections alone having been made. Professor Isaac Bayley Balfour has kindly contributed some notes, which bear his initials. I have been asked to add an index. This I have done, but it should be explained that it makes no pretence to being exhaustive, the references in many cases being too scattered and discursive.

It only remains for me to tender, on behalf of the Rhododendron Society, very grateful thanks to Miss Mangles and Mrs. Daffarn, and also to the proprietors of the GARDENERS' CHRONICLE and GARDEN for permission to reprint the articles. I must add an expression of my indebtedness to Professor Balfour not only for the notes but for much help in editing the articles.

GERALD W. E. LODER.

NOVEMBER 4TH, 1917.

The Rhododendron Society Notes.

JAMES HENRY MANGLES.

James Henry Mangles was born in 1832. He was the eldest son of Charles E. Mangles, Chairman of the London and South Western Railway, and he also occupied a seat at the Board of that Company for some years.

His cousin, James Mangles, a captain in the Royal Navy, studied the Swan River plants, and was a friend of Lindley. The genus Manglesia (now merged in Grevillea), is named after James Mangles and his brother Robert, who also introduced many West Australian plants.

James Henry Mangles studied for the Bar but did not practise. He settled at Valewood, near Haslemere in Surrey, and became an ardent gardener. He was elected a Fellow of the Linnean Society on April 24th, 1874, and served for a few years on the Council of the Royal Horticultural Society, where he did much useful work. He died at Valewood, after a painful illness, on August 24th, 1884, at the age of 52.

Mangles devoted himself chiefly to Rhododendrons, and took a special interest in hybridising. He must have begun his hobby at an early age, for in the article dated July 19th, 1879, he states that nearly 20 years previously Sir William Hooker one day at Kew gave him some pollen from a scarlet ARBOREUM, then in the Temperate house, with which he made " his first very hackneyed experiment in Rhododendron hybridising," by applying it to R. PONTICUM. He continued his work for many years, and though he met with failures, time has shown that he was abundantly successful. It is melancholy, however, to have to record that he lived to see very few of his hybrids flower. One was " ALICE MANGLES " (AUCKLANDII × PONTICUM), which he exhibited in 1882. It is unfortunately not possible to trace the parentage of many of his hybrids, but a perusal of the following articles will show that he operated chiefly with Himalayan species, and especially with AUCKLANDII (Griffithianum). He was greatly encouraged in his work by his friend Mr. Anderson-Henry, of Edinburgh, also an enthusiastic hybridiser, and he never missed an opportunity of visiting gardens in all parts of the country where Rhododendrons were cultivated. At Valewood he erected shelters or houses with removable canvas roofs, which he called his " cathedral houses," and in these he kept the more tender plants. At his death these became the property of his brother, Mr. H. A. Mangles, who removed them to Littleworth Cross, near Farnham, and on his dying in 1908, they were left to his sister, Miss Mangles, who has not only cultivated them with assiduous care, but has added largely to the collection.

On August 13th and 14th, 1911, a very destructive heath fire occurred between Aldershot and Guildford, which destroyed some 2,000 acres of vegetation ; it reached Littleworth and approached to within 50 yards of the house, which was in great danger ; as it was, a part of the garden was destroyed, including many Conifers and rare Rhododendrons.

The remainder of Mangles' collection was left at Valewood in the possession of his daughter, Mrs. Daffarn, who takes a great pride in them.

It is not the purpose of this short sketch to attempt a description of the many fine Rhododendrons at Valewood and Littleworth. Amongst the hybrids are "GLORY OF LITTLEWORTH," "LITTLEWORTH CORALLINA," "CLARA MANGLES," "ISABELLA MANGLES," "DAPHNE DAFFARN," "MARGARET SPENCE," "MISS STILLMAN," "CLEOPATRA," and "ROSE QUEEN," some of which have from time to time been exhibited at the Shows of the Royal Horticultural Society; they must be seen to be properly appreciated.

All Rhododendron lovers will join in a tribute of gratitude to the memory of one whose name will always be associated with devoted work in connection with the cultivation of that genus.

G. W. E. L.

The Rhododendron Society Notes.

LIST OF ARTICLES ON RHODODENDRONS

By J. H. MANGLES, Valewood, Haslemere.

Year.			
1879	Gardeners' Chronicle	.. ..	June 7th.
1879	,, ,,	.. ..	June 14th.
1879	,, ,,	.. ..	June 21st.
1879	,, ,,	.. ..	July 5th.
1879	,, ,,	.. ..	July 19th.
1879	,, ,,	.. ..	August 2nd.
1881	,, ,,	.. ..	January 22nd.
1881	,, ,,	.. ..	March 5th.
1881	,, ,,	.. ..	March 19th.
1881	,, ,,	.. ..	April 9th.
1881	,, ,,	.. ..	May 7th.
1881	,, ,,	.. ..	May 28th.
1881	,, ,,	.. ..	June 11th.
1881	,, ,,	.. ..	June 18th.
1881	,, ,,	.. ..	July 9th.
1881	,, ,,	.. ..	July 9th.
1881	,, ,,	.. ..	July 23rd.
1882	,, ,,	.. ..	March 4th.
1882	,, ,,	.. ..	April 8th.
1881	The Garden	.. ..	September 24th.
1881	,, ...	.. ..	November 26th.
1882	,, ...	.. ..	April 8th.
1884	,, ...	.. ..	March 15th.

The following articles referring to Mr. Mangles's Rhododendrons are included, though not written by him :—

1881	Gardeners' Chronicle	.. ..	April 9th.
1881	The Garden ..	.. ..	October 15th.
1881	The Garden ..	.. ..	July 23rd.
1882	Gardeners' Chronicle	.. ..	April 29th.
1882	The Garden ..	.. ..	April 29th.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *June 7th*, 1879.

RHODODENDRONS.

Mr. Anderson-Henry's Rhododendrons.

It may perhaps interest some of your readers if I give a short account of a visit I recently paid to the garden of Mr. I. Anderson-Henry, the veteran horticulturist and hybridiser of the North.

My friendship with Mr. Henry commenced some years ago. Our love of Rhododendrons brought us together, and Rhododendrons were to me the principal attraction in his garden, although he has many other curiosities, as is well known, from all parts of the world, and is just now devoting his chief attention, I think, to Primulas. My friend's devotion to Rhododendrons dates back as far as the year 1850. In 1848, Sir Joseph Hooker had discovered a new world of floral beauty in the Sikkim mountains, and Mr. Henry threw himself at once into the fascinating pursuit of rearing and hybridising.

RHODODENDRON "HENRYANUM" (FORMOSUM × DALHOUSIÆ) was one of his earliest and most successful hybrids. This plant had the honour, wholly exceptional in the case of a hybrid, of being figured in the BOTANICAL MAGAZINE, and did much to attract attention to the new denizens of our cool greenhouses—scented Rhododendrons.

Those who have not seen and studied these comparatively new floral treasures can have no idea of their value. Somewhat difficult of culture, they repay most fully the care and attention of their devotees; and, thanks to hybridisers like Mr. Henry, they now present much variety as well as purity and fragrance.

I can never forget the astonishment and delight with which I beheld for the first time R. CALOPHYLLUM in bloom in the Temperate-house at Kew; and R. EDGEWORTHII and R. DALHOUSIÆ among species, and R. "PRINCESS ALICE" (EDGEWORTHII × CILIATUM) and R. "HENRYANUM" among hybrids are nearly equally glorious; and what can be grander than an expanded truss of R. ARGENTEUM, or more elegant than the fringed R. VEITCHIANUM? I offered a few years since to one of our most celebrated poets a scented Rhododendron, but the plant was not in bloom at the time, and a crimson hardy variety was preferred. The other day my friend reminded me of my offer. He had seen PRINCESS ALICE in bloom, and was over head and ears in love with scented Rhododendrons.

But to return to Mr. Anderson-Henry's plants, R. FALCONERI was in fine bloom, and a spurious form of R. ARGENTEUM. The former, when grown under glass, bears enormous leaves, but grown in the open air, as I saw it a day or two ago at Mr. Rogers', of River Hill, the leaves are smaller and much less tomentose underneath. Mr. Henry's fine plant bore flowers with a delicious scent, and of unusual size. I have never seen flowers of any hybrid from this species.

Size of pollen-tube an obstacle to pollination.

In 1869 Mr. Standish stated that he could not cross with the pollen of R. FALCONERI, and the reason, as he thought, was that the pollen-tubes were too large to penetrate to the ovules. Perhaps some of your readers can throw light on the subject.

My own experience seems to show that it is not impossible to cross with this species; but many times I have gathered large capsules, so crossed, which contained nothing but chaff.

Sir J. Hooker says, I think, that R. FALCONERI replaced R. ARGENTEUM as he ascended the mountains. Both are nearly hardy, but both start into growth too early in the spring.

In the Temperate-house at Kew, I think there is a hybrid between R. ARGENTEUM and R. ARBOREUM. They are clearly closely allied, and few things could be more interesting than a breed of hybrids inheriting the grandeur of R. ARGENTEUM (in foliage and flower) with the hardiness and variety of colour of some of our arboreum hybrids.

It is, indeed, a problem for Rhododendron growers to solve, to throw colour into the white Sikkim, and especially the scented species. Mr. Darwin alludes to the "singular fact that white varieties generally transmit their colour much more truly than other varieties. The fact probably stands in close relation with one observed by Verlot, viz., that flowers which are normally white rarely vary into any other colour."*

I was too early to see Mr. Henry's R. JENKINSII (almost the same as CALOPHYLLUM) in bloom. R. HOOKERI was nearly over. R. FORMOSUM (alias GIBSONII) was, however, in full beauty. This, crossed with R. EDGEWORTHII,† has produced R. "SESTERIANUM." An equivalent of "PRINCESS ALICE," by which latter Messrs. Veitch anticipated Mr. Henry's seedling, was also in bloom, as well as R. BOOTHII, and a curious hybrid with yellow flowers. My host has also fine plants of RHODODENDRONS MADDENII, DALHOUSIÆ, AUCKLANDII or GRIFFITHIANUM, "COUNTESS OF HADDINGTON," and many others, each of

* The genetics and chemistry of flower colour has been and is now the subject of scientific experimental investigation. See works of Dr. Keeble and others.—I.B.B.

† There is some confusion over the origin of R. "SESTERIANUM" and R. "PRINCESS ALICE." Here, and again in his Article of August 2nd, 1879, Mr. Mangles gives the parentage of "SESTERIANUM" as FORMOSUM × EDGEWORTHII. On January 22nd, 1881, after quoting Focke's words "R. FORMOSUM *Wall:* ♀ × EDGEWORTHII, *Hook: f.* ♂ . . . . . is R. 'SESTERIANUM,' *Veitch.* 'PRINCESS ALICE' (Veitch & Son) is similar," Mr. Mangles says: "I have always understood and believed that the true pedigree of 'PRINCESS ALICE' is CILIATUM ♀ × R. EDGEWORTHII ♂," and then gives the story of the making of this cross by Anderson-Henry, a cross in which he had been anticipated by Veitch in their "PRINCESS ALICE." Thus to Mangles "SESTERIANUM" was FORMOSUM × EDGEWORTHII, and "PRINCESS ALICE" was CILIATUM × EDGEWORTHII; and he repeats this in his Article of May 7th, 1881, where he adds the information that "SESTERIANUM" was raised by Rinz & Co., of Frankfort-on-the-Mainc. Focke makes "SESTERIANUM" a Veitchian hybrid, possibly misled by the fact that it was awarded a First-class Certificate by the R.H.S. in 1862 (see Proceedings R.H.S. II., 1862, p. 245), when exhibited by Veitch as a hybrid of EDGEWORTHII and GIBSONII (FORMOSUM). "PRINCESS ALICE," exhibited by Veitch at the same time, also received a First-class Certificate as a hybrid of EDGEWORTHII and CILIATUM. But in the Kew Handlist (Tender Dicotyledons, p. 589, Ed. 1900), R. "SESTERIANUM" is given as CILIATUM × EDGEWORTHII. (See article on p. 110.)

which deserves a notice to itself; but what interested me most of all was a hybrid, which, according to my friend's notes, would seem to mix the blood of no less than three Rhododendrons, viz., DALHOUSIÆ, CILIATUM and NUTTALLII. A plant he gave me two years ago blossomed this year with me grandly, provoking my curiosity as much as my admiration, and giving exquisite delight to all who saw it.

Mr. Henry has several of the strain, and this may well console him for the loss of another hybrid, which perished lately, at the age of twenty-five, without once blossoming.

Both sides of the picture should be shown.

Rhododendron breeding requires time and patience, but Mr. Henry has never ceased to regard the Rhododendrons as his prime favourites, and his enthusiasm and his talk gave me the fullest encouragement. All his notes, I should add, as over and over again his plants and his pollen have been, were at my service.

I know that there are many, Mr. Boscawen and Mr. Luscombe, for instance, who are on the same track as Mr. Henry and myself, and I see no reason why Rhododendrons should not have a literature to themselves as well as many less lovely flowers.

If these few lines tend to such a result I shall be well pleased, and if you can spare the space, I should like some day to add a few notes on the following subjects: Messrs. Veitch's new strain of Rhododendrons at Chelsea, the Kew Rhododendrons, the Rhododendrons at River Hill, Sevenoaks, my own humble experience in hybridising, and, if it will not frighten you, many others.

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *June 14th*, 1879.

The hardier varieties of Rhododendrons are, as I write these lines, dazzling my eyes with crimson of every hue, to say nothing of the purples and the whites, and cry out against any preference for the tenderer sorts. "BARCLAYANUM," and "BRAYANUM," and "BLANDYANUM," and "LADY ELEANOR CATHCART," and "MRS. HOLFORD," and "MRS. CLUTTON," and a host of my own seedlings, deprecate partiality; but the Messrs. Waterer and others have done so much to popularise these plants, and they are so universally cultivated, that I have preferred to give precedence to the less familiar, and even more glorious, scented species. All sorts and kinds should, however, be kept clearly in view by the hybridist, and by those who wish to enjoy Rhododendrons in all their fullness. I remember reading, many years ago, of a Miss Walker, of Drumsheugh, near Edinburgh, who by combining hardy and tender sorts in her cool conservatory, managed to have one Rhododendron at least in bloom there all the year round. Her list included fifty species and varieties.

Miss Walker,* I am told, is dead, and her residence swept away and the site built over; but her example is well worthy of note by Rhododendron growers.

Since her time what additions have been made to the genus!

In prolonging the Rhododendron season into the dull autumnal and winter months, many have been the acquisitions, and none perhaps more brilliant or more complete than Messrs. Veitch's new strain, which may be seen at Chelsea, and of which more anon.

Miss Walker's Rhododendrons.

But Miss Walker's list deserves a few more words.

First in it stands R. "NOBLEANUM," in many varieties, blooming from October till April.

In January R. ATROVIRENS† (one of the parents of that most useful early hybrid R. "PRÆCOX," *alias* "EARLY GEM") appears upon the scene; then R. CILIATUM, of which there are lilac (see Sir J. D. Hooker's HIMALAYAN RHODODENDRONS) blush, and pure white varieties; then R. ARBOREUM, and a succession of hardy kinds till we reach R. GLAUCUM, so curious with its aromatic leaves, and so comely with its pink or dappled bells. Between the two, R. CILIATUM and R. GLAUCUM, Mr. Davies, of Ormskirk, has raised a hybrid, blushing and elegant, and fairly hardy.

"APPLE-BLOSSOM," a name I do not understand, comes next; and then R. FORMOSUM, which (sometimes called GIBSONII) resembles a scented white AZALEA, but often is streaked or tinged with pink. R. JAVANICUM takes us to another race of Rhododendrons, and into quite another region, which, however,

* Miss Mary Walker (d. March 4th, 1870), of Drumsheugh, left her land and fortune to Trustees for the benefit of the Scottish Episcopal Church. St. Mary's Cathedral, Edinburgh, was built out of the bequest.—I.B.B.

† Was it ATROVIRENS or DAURICUM that with CILIATUM produced PRÆCOX? I think DAURICUM-ATROVIRENS is by many regarded as merely a form of DAURICUM, but it is a very different plant and a rare one.—I.B.B.

our great English botanist now regards as the central birthplace of the genus, the Malayan Archipelago. This splendid species, with its large truss of bright orange flowers, is not often seen. Last year it bloomed finely at Kew, and I have seen at Messrs. Veitch's multitudes of young plants. In vain I have tried to cross it with the hardy varieties, though it has been mated with nearer relations, as will appear presently ; but last year, I am told, it refused to cross either way with R. JASMINIFLORUM. R. EDGEWORTHII, the pollen-parent of R. "PRINCESS ALICE," and R. DALHOUSIÆ, the pollen-parent of R. "COUNTESS OF HADDINGTON," bloomed with Miss Walker, in May ; and their large white scented blossoms must have been noble company for the crimson and the purple of "BRAYANUM" and "SIR ISAAC NEWTON" and others in the list, R. JENKINSII opened in June and lasted till the end of July. The dwarf and curious R. ANTHOPOGON bloomed through August ; and R. MADDENII, which very nearly resembles JENKINSII, kept up the succession till October 18th.

Such is the abbreviated record of a year of Rhododendrons. Some may perhaps think this a narrow and monotonous view of floral culture ; and yet, with the largest love for many plants, it may be well, even for an amateur, to devote primary attention to one or two, as Mr. Radclyffe to his roses, his strawberries, and his peaches, or Mr. Wilson to his lilies.

Having a few groups of plants under constant and minute attention, it is wonderful how familiar one grows with habits and peculiarities. With some botanical knowledge (and all horticulturists should, if possible, be botanists,) amateurs may, by careful and recorded observation, offer much assistance to science.

The days have gone by when, as Dean Herbert relates, naturalists frowned on hybridisers. Both have found that the more they learn of Nature, the more, it seems, remains to be learnt ; and Rhododendrons offer to both a large field for observation and experiment.

New species come pouring in apace from all climates and from many parts. Your pages recorded, the other day, a whole new series of Rhododendrons from the Malayan Archipelago and New Guinea ; while, to go to the other extreme, Regel's GARTENFLORA, Vol. XXVI., figures and describes an alpine novelty from the Baikal Mountains, a species "ZWISCHEN R. LAPPONICUM UND R. DAVURICUM." [R. PARVIFOLIUM, *Adams*.]

The variety and the range of the Rhododendrons are indeed wonderful. You may bring them from a tropical climate, or from the snow-line, where R. NIVALE patiently waits days and weeks, in storm and fog, for one sunny hour, in which its pollen may do its work. They bear flowers, some of them, as large as MAGNOLIA GRANDIFLORA, and others more tiny than a buttercup ; some are trees, others like the humblest herb ; some are evergreen, others deciduous, and others again half-and-half. Their leaves are nearly as various as their names, and I have often amused my guests by a study of their foliage, from R. FALCONERI down to R. LEPIDOTUM. And yet, not only does the botanist know their close alliance, but the hybridiser is constantly discovering strange likings and antipathies among them, which may some day lead to the disclosure of new truths.

Miss Walker's list, though sufficiently tempting, gives a very imperfect indication of the materials for culture now available. I saw, for instance, at Messrs. Veitch's, a beautiful hybrid raised by Mr. Luscombe, between R. FORTUNEI and R. THOMSONI, yet neither of these noble species appear in the list. Again, no collection would now be tolerable without R. GRIFFITHIANUM *alias* (?) AUCKLANDII, whose splendid open cup-like corolla and minute stamens offer so striking a contrast to the trumpet-shaped CALOPHYLLUM, with its large and numerous stamens, streaming with pollen, though both are strongly scented.

About a month ago a hybrid at the Lawson Company's nurseries, raised by Mr. Scott between this R. GRIFFITHIANUM and the hardy late variety "JOHN WATERER," (ARBOREUM × (probably) CATAWBIENSE), was shown to me, and it seemed worthy, I thought, of both parents.

I have been hybridising in the same line, and I would say that no Rhododendron grower would now be worthy of the name if he or she did not possess the various species, for instance, named above.

I have prosed on, I find, at so great a length, that I must reserve for another paper my note on the Chelsea strain, instead of tacking it on to the end of this.

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *June* 21*st*, 1879.

The strain of Rhododendrons raised by the Messrs. Veitch, of Chelsea, has opened, so to say, a new vista to Rhododendron growers, at least to such of them as have a warm greenhouse. I have mentioned my astonishment and delight at the vision of R. CALOPHYLLUM in the Temperate-house at Kew; but I was scarcely less impressed on being first introduced to the house at Messrs. Veitch's, where, with due precautions, their seedlings were guarded from the vulgar eye and the risk of mischance. Mr. Taylor, to whom their existence and their rearing are principally due, was (and I may say is) not a little proud of his productions, and well he may be.

Javanese and Malayan Rhododendrons.

What met my eyes as I entered the house (it was a dull and gloomy November day several years ago), was a neat compact batch of seedlings with good dark green and glossy foliage, and on one of them several trusses of expanded flowers, such as I had never seen before. The colour was a peculiarly striking crimson, the truss many-flowered; and each well-poised member of the umbel showed itself to perfection. The shape of the flower was something between salver-shaped, funnel-shaped, and bell-shaped, as botanists would say, all of which may be loosely rendered by "a Brobdingnagian crimson jasmine." I examined the flowers, and found that, like R. FALCONERI, they had little or no calyx; that the anthers, though those of hybrids, were nevertheless well furnished with pollen; and that the leaves showed through a lens the scales and pitted marks peculiar to certain Rhododendrons with which I was well acquainted. The colour I have said was peculiar, and this is a feature of the strain, for the red and crimson are totally different from the reds and crimsons of the hardier varieties; and the coral, orange, and yellow are scarcely to be found outside the limits of the strain, or the parents which produced it. Seedlings of all the above and other colours have unfolded their blossoms since my first visit. Each year has produced some new varieties; I think the last was the MAIDEN'S BLUSH, which, as a tiny plant, with one truss of large and most striking flowers, was exhibited at the great horticultural show a very few weeks ago.

One of the most beautiful of them all is × R. "TAYLORI," of a brilliant colour, and named most appropriately after the founder of the race. "DUCHESS OF EDINBURGH" was my first friend, and never ceases to delight me. "DUCHESS OF TECK" is light buff shaded with orange; "PRINCE LEOPOLD," a mixture of fawn and rose and yellow; "DUKE OF EDINBURGH" is coral-pink; "PRINCESS ROYAL" (the oldest of the family), blushing or rosy-pink; and "PRINCESS ALEXANDRA," pure white. The plants thrive best in very small pots, which points to their epiphytal tendencies; they bloom freely when small, and I have seen them blooming in many different months, in the depth of winter and in the blaze of a seasonable midsummer. A horticulturist should not content himself with collecting and cultivating pretty flowers, but he should, as far as in him lies, learn their native places, their history, their botanical peculiarities

and affinities, and in the case of hybrids, their parentage. I should consider, then, this paper very worthless were I not to say something in it as to the parentage of the plants which I have been praising.

Mr. Taylor, at my request, has given me the following particulars, which no doubt are substantially correct, though they differ slightly from a list published in the GARDEN in 1875. I understand that the first-named of the two plants is the seed-bearer.

First Crossing: R. JAVANICUM and JASMINIFLORUM, the produce being R. "PRINCESS ROYAL," R. "PRINCESS HELENA."

Second Crossing: R. "PRINCESS ROYAL" and JASMINIFLORUM, the produce being R. "PRINCESS ALEXANDRA."

Third Crossing: R. LOBBII and JAVANICUM, R. LOBBII and "PRINCESS ROYAL," R. LOBBII and "PRINCESS HELENA," R. LOBBII and BROOKEANUM, the produce being the various hybrids which the Messrs. Veitch have hitherto shown and distributed.

Now, I can fancy some of my readers, after the study of this genealogy, sighing that I have left them just as wise as I found them; that of R. JASMINIFLORUM they know no more than the name indicates; of R. JAVANICUM no more than I told them in a former paper; and of R. LOBBII and BROOKEANUM (figured in the GARDENERS' CHRONICLE, 1871, p. 236), absolutely nothing at all.

The truth is, that these species are but seldom cultivated; and as to the two last, people may hunt far and wide and yet not see them. Do I then need any apology for repeating information which doubtless has already appeared in this journal, but which seems very much in point in a series of papers written to encourage the cultivation of Rhododendrons as a special study?

R. JASMINIFLORUM, which, as the best known, I take first, is figured and described in the BOTANICAL MAGAZINE, Vol. LXXVI., t. 4524. It was introduced from Mount Ophir, Malacca, and was exhibited at Chiswick, from the Nursery of the Messrs. Veitch, in 1850; and this is what Sir William Hooker said of it: "Many of the flowers excelled it in splendour; but the delicacy of form and colour of the flowers (white with a deep pink eye), and probably their resemblance to the favourite Jessamine (some compared them to the equally favourite Stephanotis), attracted general notice.

"So unlike, indeed, are they to the ordinary form of Rhododendron blossoms that a reporter in recounting the prizes of the day seemed to imply that it was probably no Rhododendron at all." The leaves of this species are very thick and substantial, the growth dwarf, the habit most floriferous, and the flowering, under favourable circumstances, nearly continuous. Plants, well set with blossom-buds, are easily to be procured at a very moderate price. Such was the first pollen-parent of the new strain.

R. JAVANICUM is figured in the BOTANICAL MAGAZINE, Vol. LXXV. (1847), and Sir W. Hooker thus describes it: "On communicating this splendid plant to me for figuring in the BOTANICAL MAGAZINE, Messrs. Veitch & Sons, its possessors, remark that it is certainly one of the finest things ever introduced to

our gardens, and in this opinion we think all will agree who see the present representation, and more especially those who have the privilege of beholding, as we now do, the plant itself with its beautiful glossy bright green foliage and orange-coloured flowers (twelve in a bunch), here and there marked with red spots, and again spotted as it were, with the dark black-purple coloured anthers, which lie generally five on each side towards the lower side of the mouth of the corolla. . . . Blume discovered it on the Mountain Salak, in Java ; Dr. Horsfield on the volcanic range extending through Java, in dense forests, at an elevation of 4,000 feet above the level of the sea."

Hence we are not surprised to learn from Mr. Veitch that it succeeds well under the mere shelter of a greenhouse. (See also GARDENERS' CHRONICLE, 1848, p. 172.) Such was the first seed-bearing parent of the new strain.

It may seem an astonishing thing (and I am told that it astonished Dr. Lindley), that an orange-coloured and a white flower should produce between them a flower rosy-pink in colour, as "PRINCESS ROYAL" (see the pedigree), undoubtedly is. But I think that the puzzle is solved by referring to Bennett's PL. JAV. RAR., p. 85, t. 19, where R. JAVANICUM is represented of a crimson colour ; so that we may take it, and it has been stated, that R. JAVANICUM is variable in colour, and that those who raise seedlings may hope to be delighted by the various tints which are in the blood of the species.

I am afraid, however, that large blossoming plants of R. JAVANICUM are rare, though smaller ones may be readily procured. The habit of the species is to bloom when small, and to bloom freely, and few things are more beautiful than a plant of it.

Mr. Veitch hoped that it would bloom all the year round, but in this respect his hopes have not been realized. I must postpone my remarks on the remaining parent species till I send you another paper.

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *July 5th*, 1879.

In my last I described Messrs. Veitch's new strain of Rhododendrons, and explained that the two species first used as parents were R. JASMINIFLORUM as pollen-parent and R. JAVANICUM as seed-bearing parent.

Later on Mr. Taylor mingled the blood of two other species in the strain, viz., R. LOBBII (named after Mr. Lobb, the collector for Messrs. Veitch), and R. BROOKEANUM (named after the well-known Rajah Brooke, of Sarawak). These two species, as will be seen, are stated to be closely allied with R. JAVANICUM.

In devoting a few words to their description I am merely, so to say, going over the ground I myself traversed when I admitted their progeny into the list of my favourites.

As there was, and is, very great difficulty in procuring, or even in seeing the blossoms of the parents, I wished to find plates and accounts of what had produced so much beauty, and, as fond friends do, to trace the features of the parents in the children, or to marvel at the differences. I am bound to confess that I have never yet seen in the flesh the flowers of either R. LOBBII or R. BROOKEANUM, nor do I know where they are to be seen. Dried specimens of Rhododendrons are wholly unsatisfactory.

R. LOBBII is mentioned in the GARDENERS' CHRONICLE, of October 14th, 1871, as a brilliantly flowered stove shrub, with bright crimson flowers, introduced from Borneo by Messrs. Veitch & Sons. It is figured in the FLORAL MAGAZINE, plate 10, and is there depicted of a bright yellow colour; but Messrs. Veitch have two coloured representations of the plant they used in breeding, one painted for them by Mr. Chandler, and the other in one of their own catalogues.

In these the flowers are red, and not very showy, and in size approaching nearer to R. JASMINIFLORUM than R. JAVANICUM. In Regel's GARTENFLORA, Vol. X., R. LOBBIANUM is thus spoken of: "Dieser schöne Strauch mit gelber Blume steht in der Mitte zwischen R. JAVANICUM und R. BROOKEANUM und wurde sogar Anfangs nur als eine Varietät dieser letzten Art betrachtet. Th. Moore hält sie jedoch für eine gute Art" (stands between R. JAVANICUM and R. BROOKEANUM). (The R. LOBBIANUM, Moore, FLORAL MAGAZINE, F.10 (1861), is not the same as the red-flowered plant alluded to in the above paragraph. It was exhibited by Messrs. Veitch as R. BROOKEANUM FLAVUM, but being judged distinct, was named R. LOBBIANUM when figured. How another plant came to be so called we cannot tell, but the latter was never published. At the time of the appearance of these hybrids, this bright red small-flowered plant was said to be an unnamed species from Borneo.—I. Moore).

R. BROOKEANUM is figured in various quarters; in the GARDENERS' CHRONICLE, for February 25th, 1871, and the JOURNAL OF THE HORTICULTURAL SOCIETY OF LONDON, Vol. III., p. 81, uncoloured; and in the BOTANICAL MAGAZINE, Vol. LXXXII., tab. 4935, and elsewhere, coloured.

The best authority quotes the following description by the discoverer of the plant : " I shall never forget," says Mr. Low, " the first discovery of this gorgeous plant ; it was epiphytal upon a tree which was growing in the water of a creek. The head of flowers was very large, arranged loosely, of the richest golden yellow, resplendent when in the sun ; the habit was graceful, the leaves large. The roots are large and fleshy, not fibrous, as those of terrestrial Rhododendrons. It is the least common of the genus in the island (Borneo), and has many varieties, which differ in having larger flowers and leaves, the former of a more or less red colour." Dr. Lindley (see JOURNAL OF THE HORTICULTURAL SOCIETY OF LONDON, quoted above), says : " The species is allied to R. JAVANICUM " ; and the BOTANICAL MAGAZINE calls " R. JAVANICUM the nearest ally to the present."

If R. LOBBII and R. BROOKEANUM are in reality closely allied with R. JAVANICUM, and (see the GARTENFLORA) also with one another, the great triumph and curiosity of the new strain lie not so much in the fact of the breeding between these allied species (though closely allied species will not always interbreed), as in the union of R. JASMINIFLORUM with two of them (see pedigree in last paper).

It will be also observed that both " PRINCESS ROYAL " and " PRINCESS HELENA," being hybrids, bred again with R. LOBBII, which is interesting ; and I should be glad to know whether the progeny in these cases produced pollen as freely as I know some of the strain do. The most general symptom of hybridity is well known to be abortion of the anthers, and absence of pollen, the stamens being apparently more susceptible than the pistil. That it was no easy task to unite R. JAVANICUM with R. JASMINIFLORUM may be gathered from what I said the other day of the utter failure, in a very competent quarter, of an attempt to breed, both ways, between the two. I tried myself, I find, in 1877, to breed with pollen of R. JAVANICUM on R. JASMINIFLORUM, but without success. Experience has taught me, however, that one attempt, or even two of the kind, are by no means conclusive.

Climatic conditions in relation to hybridisation.

My friend, Mr. Anderson-Henry, has expressed strong views (see GARDENERS' CHRONICLE, April 13th, 1867), on the occurrence of certain happy atmospheric moments for the union of vegetable species. " Never try such things," he said to me the other day, " when an east wind is blowing." Gaertner says : " Die Sommer-Wärme und die Morgen-Zeit sind der Bastard-Befruchtung vorzüglich günstig."

Without committing myself to these views, it is impossible to deny that some causes do contribute in an (at present) occult manner to the fertilization of flowers ; certain flowers of a truss of a Rhododendron, for instance, accepting fertilization and others refusing it ; and a plant one year taking a cross which next year it seems to decline. All good horticulturists should keep their eyes and their note-books open for the observation of such phenomena, which they may feel certain are not the mere results of chance.

Predisposition to hybridisation.

The Messrs. Veitch's success, and the failure elsewhere, may, however, possibly be explained by the existence of numerous varieties of R. JAVANICUM, some of them perhaps inclined to a union with R. JASMINIFLORUM, and others

disinclined. And the same variation may exist in the case of R. JASMINIFLORUM (Mr. Anderson-Henry has a blush-coloured variety). Indeed, extraordinary variation seems to be a feature of the Malayan Rhododendron flora ; Dr. Beccari (MALESIA, part III.), saying : "Dalle mie osservazioni particolari apparisce che quasi ogni cima di montagna in Borneo ha le sue forme speciali che non sembrano diffondersi nemmeno sulle montagne prossime." The results of Mr. Taylor's labours seem most encouraging for fresh experiments in the same field.

A great variety of floral beauty, very novel and very striking, has been attained by intercrossing with four Malayan species, three of those species being said to be closely allied with one another. Let no one suppose, however, that there are not many more species to be drawn from the same region for the instruction of botanists, the delight of horticulturists, and the material for hybridisers. Dr. Beccari mentions twenty-seven species inhabiting the Malesian and Papuan Archipelago, and one of them, R. KONORI, discovered in New Guinea, he says : "Essa è forse la più bella specie di Rhododendron dell' Arcipelago." Of the Bornean Rhododendrons alone he says : "Con le specie da me adesso descritte i Rhododendron conosciuti di Borneo ammontano a 15 specie ben distinte."

As to the possibility of crossing this Malesian tribe with other members of the genus, inhabiting other regions of the globe, I know next to nothing, and should be very grateful for information.

The Messrs. Veitch have from time to time most kindly and liberally supplied me with pollen of their hybrid strain. I find that in 1876 I used it upon four different Rhododendrons, on AZALEA AMŒNA, three kinds of AZALEA INDICA, and AZALEA PONTICA of five varieties, wholly without result. In 1877, I used it upon two seedlings of R. MOLLE (what used to be AZALEA MOLLIS, at Kew, is now R. MOLLE), and on various Azaleas and Rhododendrons and hybrids, again without success.

In 1878, I used it upon R. MULTIFLORUM × CILIATUM × VIRGATUM, CILIATUM, FORMOSUM, MADDENII, GLAUCUM, MOLLE, "PRINCESS ALICE," and "SESTERIANUM," and on AZALEA AMŒNA and many others.

This year I have used it upon most of the above again, and also upon R. DALHOUSIÆ, CALOPHYLLUM, PENDULUM, "LADY SEFTON," GIBSONII HYBRIDUM, and GLAUCUM HYBRIDUM (the last three raised by Mr. Davies, of Ormskirk), BOOTHII, CAMPYLOCARPUM, LEPIDOTUM, TRIFLORUM, and a number of hardy hybrids and others.

So far (and I have omitted my work with Malayan species), I see no sign of success ; but I must not yet wholly despair as to the experiment of this year.

Interval between pollination and swelling of ovary.

I have found, by careful observation, that a month, on an average, is the time required for the journey of the quickening influences of the pollen down the style of Rhododendrons and Azaleas, and the resulting and (with a lens) obvious expansion of the ovary. All botanists know that plants differ very much in the time required for this operation ; and perhaps some day you will give me leave to explain how Rhododendrons differ among themselves.

In conclusion, I hope that I have not wearied out both you and your readers with my long yarns about Rhododendrons. If not, I should be glad some day to add a few lines on what seems to be the realization of a hope expressed in my first paper, viz., that hybridisers might find means to infuse scent into our hardy varieties, or colour into the scented. I have received a grand collection of blossoms from the Lawson Nursery Company, Edinburgh, of plants raised by Mr. Scott, which are well worthy of notice. A few weeks ago I saw the plants growing in the open air in the Nursery, and the blossom of one was shown to me. I have now more than a dozen varieties before me, in the finest condition, scented and coloured, beautiful, and most interesting.

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *July 19th*, 1879.

Nearly twenty years ago I walked with Sir William Hooker through the gardens at Kew, and in the Temperate-house he gave me some pollen of the finest scarlet RHODODENDRON ARBOREUM there, with which I made my first essay in hybridising. This ARBOREUM variety was, and is, notable for size and colour, and also for the specially bold and martial habit of the stamens, which, like bayonets, seem to threaten an intruder. As there was nothing else at the moment available, the pollen was applied to flowers of R. PONTICUM. So potent was its influence that, although I used none of the nice precautions now deemed indispensable (excision of the anthers and careful isolation of the plants), the cross was effected, and many seedlings raised, all of which show the ARBOREUM blood strongly in their foliage. Several have bloomed, and so far prove the prepotency of the Indian (perhaps because the pollen-parent) over the Pontic race. Others, and these the greater number, still refuse me a single blossom, but they are large and hearty plants. This, my first and very hackneyed experiment in Rhododendron hybridising, set me thinking about the geographical distribution and probable alliances of the different species of the genus. The Himalayan and Nilgherry R. ARBOREUM breeds easily and freely (nay, perhaps prepotently) with the Pontic, and with the American CATAWBA species, and, I believe, with R. MAXIMUM, from America also. But try it with some of the "scaly" species, and the attempt will often be an utter failure, although many of these "scaly" species are geographically its close neighbours. Close neighbours, however, rarely interbreed with fertility; for, if they did so, they would be very apt (Primrose and Cowslip case notwithstanding) to disappear. But to return to the ARBOREUM crosses above mentioned, they produce thoroughly fertile offspring. I have somewhere read that Mr. Standish reported that many of these reproduced themselves quite truly, and my own experience is nearly the same.

This fact has often made me doubt whether the parents should be specifically distinguished at all. Such a question, however, is a question for the future, but one which we must keep open. If the Pontic and American species breed so freely with R. ARBOREUM, why not, thought I, with other Indian species, at all events with those "unscaly" species, which do not seem to hail from the Malayan Archipelago? Procuring, then, the pollen of R. AUCKLANDII and applying it, I watched the capsules swelling with portentous speed, outstripping those fertilized by the seed-bearers' own pollen. Moreover, the capsules, when ripe, were full of good seed, which in oft-repeated experiments freely germinated and grew, leaving to me only the patient (in Rhododendron raising the almost pathetically patient) part of waiting for a blossom.

Thus instructed on the subject, I soon detected some similar seedlings in the gardens of the Lawson Company three years ago. The foliage then told me their tale; but Mr. Scott, their raiser, has since, after an absence of ten years, returned to vouch their ancestry, and to see many of them bloom for the first time.

When I was in Edinburgh, in the May of this year, I examined the batch growing in the open garden, with many trusses half, and one fully expanded. The plants seemed quite hardy, and the numerous blossoms which I have since received were very perfect and unscathed by frost.

The parents are stated to be R. AUCKLANDII (pollen-parent) and "JOHN WATERER," a so-called "hardy hybrid" (seed-bearer); and knowing both parents very intimately, I have no doubt whatever that the statement is correct.

The calyx and the scent, and the diminished stamens—which, by the way, are full of pollen—as well as the larger flowers and the looser truss, bespeak unmistakeably the pollen-parent, which in the case of alleged hybrids is the parent to be always specially doubted.

Quite apart from their beauty, I think these seedlings deserve notice in your paper, as tending possibly to throw some light on the subject of Rhododendron alliances, in such a "confronts" (?) of the species as Dr. Beccari thinks so desirable.

I hope that Mr. Scott has tested their fertility *inter se*; for "JOHN WATERER" being a hybrid between R. ARBOREUM and probably R. CATAWBIENSE (Mr. Waterer cannot inform me precisely), these seedlings, it will be observed, unite the blood of three species. "JOHN WATERER" is a very late blossoming, deep crimson variety; and be the parentage what it may, the crimson colour is derived from R. ARBOREUM, and the hardiness and late habit, etc., from another type (? CATAWBIENSE).

Early hybrids of R. AUCKLANDII.

The late habit was very properly selected to correct the early tendency of R. AUCKLANDII, with only partial success however, for the blood of R. ARBOREUM uniting with that of R. AUCKLANDII (both precocious) has apparently compelled the seedlings to bloom much earlier than might have been anticipated from the tardy habit of "JOHN WATERER." I would advise all Rhododendron lovers, who do not know R. AUCKLANDII, to lose no time in examining Sir Joseph Hooker's book, and better still, to visit Kew next May, in which month R. AUCKLANDII is generally in bloom there. Magnificent, however, as is the portrait, taken from blossoms in their native land, it is scarcely worthy of the plant as since grown in England. Nor does the description quite do justice to its merits; for instance, it is called "scentless," whereas the GARDENERS' CHRONICLE, of May 18th, 1878, very properly describes the flowers as "of the richest fragrance."

Again "flowers from three to five together in a truss" are far below the standard.

Your issue, quoted above, describing flowers grown by Mr. Boscawen, says: "It is difficult to find an adjective sufficiently expressive of the majestic loveliness of the flower. The truss consists of nine flowers, each on a delicately frosted or primrose stalk, and having at the base a large pink calyx and a broad open bell-shaped corolla five inches and more across; of a clear white colour."

Mr. Boscawen's plant, as I understand, grew and flowered in the open air (but in Cornwall), and I, 600 feet above the sea, and far more to the North, have found the species, in some senses, hardy. During the past winter I adopted the plan of breaking off and examining the buds every week or two. The autumnal

and winter frosts had no ill effects ; all went well till Easter, but then the too precocious buds, though scarcely showing they were swelling, received within the fatal and blackening stroke.

It is curious to observe how Mr. Scott's seedlings vary from nearly white to a deep rich crimson. For my own information I have made an elaborate note of all the peculiarities, but I need not trouble you with it here.

Suffice it to add that the pollen-parent by no means asserts an universal supremacy ; although, as it contributed one-half of the blood as against one-fourth each of the two other factors, such a result might have been expected. The habit of the plants is compact and bushy, the size of the flowers midway between the parents, the scent fainter than that of R. AUCKLANDII, but very perceptible. If these seedlings prove to be as hardy southwards as they have shown themselves to be in Edinburgh, they will be real beauty-acquisitions to all Rhododendron cultivators, beyond their interest from a scientific point of view.

The moral of this paper is that there is much to be done and much to be learnt in the cultivation of my favourite plant.

The cross which I have celebrated may have been (perhaps by Mr. Luscombe, perhaps by Mr. Boscawen), effected elsewhere, but I would use it merely as an illustration of the deep and varied interest which gathers around these floral experiments. How many subjects have been glanced at which might provoke to unending thought and observation a whole army of Rhododendron growers, or, indeed, earnest cultivators of any plant. As we advance, Nature is always presenting fresh problems for solution. So much the better, provided we arm ourselves with intelligent and industrious research, and German concentration, to meet the emergency.

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *August 2nd*, 1879.

Hybridising experiences.

The " pray do " with which you responded to the proposal in my first (I have now arrived at my sixth) paper, to relate some of my own hybridising experiences, as well as the following passage from the pen of Mr. Thiselton-Dyer, must be my excuse for again troubling you. Mr. Dyer, in your issue of February 2nd, 1878, alluding to Mr. Parkman's communication on Lily hybridising, called it " an excellent example, which it is much to be wished that other hybridisers would follow," and he added that " they should record for the benefit of science the results of even their unsuccessful attempts." In the spring of last year, I was hybridising with many Rhododendrons, and among others, using a plant of R. FORMOSUM as seed-bearer. R. FORMOSUM is well known as a white scented variety, not hardy, and found by Sir J. Hooker growing in the Khasia Mountains at the low elevation of 2,000 feet (see HIMALAYAN JOURNAL). It is said to be nearly allied with R. VEITCHII, from Moulmein, whose splendid fringed blossoms charmed so many at the shows of the year, and also with R. CHAMPIONÆ,* which was " found growing abundantly among rocks in a ravine at Fort Victoria, Hong-Kong," in 1849 (see BOTANICAL MAGAZINE, t. 4609), but of which I know nothing further, and should be glad of information. On the above-mentioned plant of R. FORMOSUM I touched flowers (in pairs, which are far better than single flowers for detecting errors), with pollen of R. ARBOREUM, MOLLE, "PRINCESS ALICE," GLAUCUM, AUCKLANDII, JENKINSII, FALCONERI, EDGEWORTHII, "DUKE OF EDINBURGH" (one of Messrs. Veitch's new strain), and of AZALEAS AMŒNA, PONTICA, and INDICA. Two pairs only of the capsules swelled, viz., those touched with the pollen of R. EDGEWORTHII and JENKINSII.

The rest fell off about a month after the corollas. As to the cross with R. EDGEWORTHII, I felt but little interest, for I knew that it had been effected long ago, and that × R. " SESTERIANUM " and others were the result; but the cross with R. JENKINSII appeared to me novel. It promised also to be useful, considering the extreme beauty of the species, and the following very correct description of it in Regel's GARTENFLORA: " Scheint zu den sehr dankbar blühenden Arten zu gehören, indem unsere 2 Fuss hohe Pflanze auf der Spitze jedes ihrer 3 Aeste eine Blumendolde trägt."

The four capsules continued to swell during the summer and autumn, and in October it was difficult to detect the smallest difference between them. They had attained a full size, and seemed to ripen gradually during the winter months, still maintaining apparently perfect equality. At the end of January of this year, the two EDGEWORTHII capsules dehisced, and were found to contain abundance of plump well-ripened seed. The two JENKINSII capsules kept closed, turning brown, however, at the apex, and seeming to ripen downwards.

On February 1st these last were gathered and opened. They contained chiefly what I may call (as Mr. Parkman does) chaff; but in one capsule I found

* When and by whom has the alliance of R. FORMOSUM and CHAMPIONÆ been suggested ?—I.B.B. *See* LEMAIRE JARDIN FLEURISTE, Tom. I., pl. 208.

one, and in the other two abnormally inflated and tailed seeds, which seemed still unripe. On the same day the whole contents of these two JENKINSII capsules were sown, that is to say, were laid, as is usual with Rhododendron seed, on the surface of peat soil, the pots being covered with panes of glass. On February 22nd the contents of one of the EDGEWORTHII capsules were sown also, and both lots were kept under precisely the same conditions in a greenhouse.

On March 16th the EDGEWORTHII seeds were seen with the aid of a lens to be sprouting, and the radicles to be descending into the soil. On April 28th the plumules were distinctly showing, and now, at the end of July, the young plants are pricked out, some of them bearing three or four leaves besides the cotyledons.

Meanwhile the JENKINSII seeds for seven weeks made no sign ; but, whereas the chaff was soon covered with mildew and disappeared, the three seeds retained a living, though somewhat rotten appearance.

On March 22nd two of them were observed to be protruding radicles, and the third soon followed suit. Early in April, however, two rotted off without further progress, the other living on, but advancing very slowly in growth.

On May 9th what served for cotyledons was fully expanded, and this proved to be a cornucopia-shaped sort of cup, thick and succulent as in some of the Hepaticæ. The cup lived on to the present time, with little or no apparent growth, and without the smallest sign of a plumule ; indeed it seems obvious that there is none. I shall continue to guard and watch this abortion, although I have not the faintest hope of its further development. I need scarcely add that I have repeated the experiment this year with pollen of R. JENKINSII.

At the present time I have many well-swelled capsules on two plants of R. FORMOSUM, and I await the result with curiosity.

The above is a very fair example of the disappointment which often awaits the hybridiser ; but, let me add, a good illustration also of the very interesting phenomena which hybridising enables him to study. The effect of foreign pollen on the capsule and seed of the female parent is often remarkable, stimulating one or both up to a certain point, and yet very imperfectly, or not at all, effecting fertilization.

Pollen of R. FALCONERI.

The pollen of R. FALCONERI, for instance, has a most astonishing effect on some of the other Rhododendrons. For several years I have watched the process with increasing wonder. In about half of the time usually required the capsules, stimulated by this pollen, swell and continue swelling until they have attained a large size. Then they ripen as rapidly as they have swelled, but generally contain only chaff, or at best, much chaff mixed with a few perfect seeds. Other foreign pollen seems to act in a different way. The capsules swell hopefully, but, instead of chaff, the cells contain long leathery bodies, which would seem to be abnormally developed placentas, while the ovules have not been developed at all, not even into chaff. The effect on the ovules is well illustrated by the JENKINSII cross I have detailed above, and reminds me of what I have often seen in the capsules of crossed Lilies—all chaff, with the exception of one or two bloated, unripe, and ill-shaped seeds. Your readers are probably aware of the many interesting remarks on the subject by Gaertner and

other writers, but each writer has dealt with his own class of plants, and each class has probably its own peculiarities, so that it is dangerous to generalize too much from particular instances.

Effect of hybridisation in producing tricotylar seedlings.

With regard to Rhododendrons, almost a volume might be written on the various influences of various pollens. Mr. Anderson-Henry is quite right in saying that some pollen seems to burn or poison the stigma to which it is applied ; other pollen burns as it goes, and yet fertilizes. Some works slowly and yet more effectually than the speedy worker, and some seems to require frequent application to the stigma to produce any result. Perhaps the most curious observation I have made is the tendency of the pollen of one Rhododendron on another Rhododendron to produce seedlings with three instead of the normal number of cotyledons.

But I have trespassed long enough on your space for the present with my special subject.

J. H. M.

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GARDENERS' CHRONICLE, *January 22nd*, 1881.

I received Focke's work (DIE PFLANZEN-MISCHLINGE) a few days before your article on it appeared.

I quite agree that it is a very important contribution to the literature relating to hybridising, and contains evidence of much labour and care, although, of course, it has its errors and omissions.

I naturally turned first to what I may call my own department, viz., "Rhododendrons." There I found a great deal very accurately stated, and it is in no spirit of disrespect that I point out two errors or bad guesses which I think deserve notice, because they relate to plants commonly grown here and on the Continent, and, I may say, general favourites with many of us. I allude to "PRINCESS ALICE" and "COUNTESS OF HADDINGTON."

With regard to the former, Focke writes: "R. FORMOSUM, WALL ♀, × EDGEWORTHII, HOOK f. ♂, mit schönen weissen Blumen ist R. 'SESTERIANUM,' VEITCH. 'PRINCESS ALICE' (Veitch & Sons), ist ähnlich."

Now, I have always understood and believed that the true pedigree of "PRINCESS ALICE" is R. CILIATUM ♀, × EDGEWORTHII ♂. The following extract from a paper read by Mr. Anderson-Henry in 1867, as President of the Botanical Society of Edinburgh (I think reprinted by you at the time), (see p. 379, 1867), will, I am sure, interest many of your readers:—

"When the lovely and fragrant R. EDGEWORTHII first bloomed in this country, all were eager to see its beauty and perfume transfused into dwarfer and hardier forms. Some tried the cross by making EDGEWORTHII the female or seed-bearer, others by making it the male. I tried in both ways; but for my own part all those efforts failed when I attempted the cross on the EDGEWORTHII. But while it would not be brought to bear hybrid seed, I had no great difficulty in effecting a cross from its pollen on R. CILIATUM, another of Dr. Hooker's beautiful Sikkim species, having all the desirable requisites of hardihood, dwarf habit, and free-flowering tendency, and, singularly enough, just as I had obtained and sent off blooms of this brood to lay before the Committee of the Horticultural Society of London, Messrs. Veitch, of Chelsea, anticipated me in having a plant of this identical cross first exhibited before that Committee, which is now well known and generally cultivated under the name of RHODODENDRON 'PRINCESS ALICE.'"

As to "COUNTESS OF HADDINGTON" × Focke writes: "R. FORMOSUM, WALL ♀, × DALHOUSIÆ, HOOK, f. ♂, hat blassroth (R. FORMOSUM) angehauchte Blüthen die so gross sind wie bei R. DALHOUSIÆ, BOTANICAL MAGAZINE, 5322. 'COUNTESS OF HADDINGTON' HORTUL. scheint dasselbe zu sein."

Here again is an error, the female parent of "COUNTESS OF HADDINGTON" being R. CILIATUM, and not R. FORMOSUM. Thus one of your contemporaries wrote many years ago :—

"Among new plants by far the most striking was the lovely seedling R. 'COUNTESS OF HADDINGTON,' exhibited by Mr. Lees, of Tynninghame Gardens. This is a real gem, being a cross between R. CILIATUM and DALHOUSIÆ, showing the stiff compact habit of the former, with vastly superior foliage, and the sweetness and beauty of the latter." I quote this passage as the first to hand, but the pedigree has been often given correctly, and I think the plant speaks for itself.

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *March 5th*, 1881.

Perhaps you may find room for a few more words about Rhododendrons before their season is fully upon us. During the past year I have taken every opportunity that offered to inspect and to study them, and a few remarks, critical and explanatory, may not be unacceptable to some of your readers, who have not inspected for themselves. During the above period no species perhaps has more excited my admiration than R. VEITCHIANUM, which ought to flourish freely wherever Indian AZALEAS are grown. The finest plants I have seen are at Messrs. Veitch's. They flowered magnificently last year, and Mr. Minns, the foreman in charge, showed me them again the other day, bursting into bloom in company with AZALEAS, red and white. No lover of Rhododendrons should omit a visit, if possible. R. VEITCHIANUM.

Other nurserymen, however, have plants (I have seen them at Messrs. Henderson's, Mr. Parker's, at Tooting, and elsewhere), and your issue of last week describes a grand specimen of one of the varieties at York. Wherever they are to be seen I can only repeat my advice, to go and inspect them. Nothing can exceed the purity, the elegance, and the grandeur of the best specimen flowers. One variety has the edges crisped (and this I think is the more beautiful) ; the other, R. VEITCHIANUM LÆVIGATUM, is smooth, but both are magnificent, and bloom when quite small plants. The flowers are three or four times as large as those of an AZALEA, pure white, scented, graceful, and delicate beyond expression.

It is no wonder that Messrs. Veitch obtained the highest honours when they re-exhibited this beautiful species ; for, strange to say, although exhibited so far back as 1857, it had dropped out of British admiration, and was almost re-imported from the Continent.

The species comes from Moulmein. It is figured in the BOTANICAL MAGAZINE, t. 4992, and is there described as bearing flowers, "full five inches across."

Its nearest ally is said to be R. FORMOSUM, and in this I fully acquiesce. I have, moreover, proved that the two will interbreed. On the Continent they graft on R. CALOPHYLLUM, a strong vigorous species, which itself, however, yields to none in beauty and fragrance.

R. VEITCHIANUM comes from Moulmein, and coming from so far south I have great hopes that it may prove a link between the Himalayan Rhododendrons and those from the Malayan Archipelago, if, indeed, the two are ever to be united. I am speaking now horticulturally, and not botanically, and with all respect for the views of Mr. C. B. Clarke ; but I trust that gardeners will not yet despair of raising hybrids between the two races, although the difficulty seems very great.

R. VEITCHIANUM is, and must remain, a greenhouse species. Allow me to add a few words about a hardier and most lovely Rhododendron.

The Rhododendron Society Notes.

R. FORTUNEI, as I saw it growing in the open air at River Hill, Mr. Roger's place, ought to be the ancestor of a splendid race of hardy plants, scented, floriferous, and coloured. Mr. Luscombe has, or had, the same excellent type, scarcely inferior (the BOTANICAL MAGAZINE says superior) to R. AUCKLANDII. The variety at Kew, on the other hand, is vastly inferior, and indeed contemptible.

Such is an illustration of the puzzles connected with Rhododendron judging. R. AUCKLANDII presents the same diversity of type (see remark in Hooker's RHODODENDRONS) ; so does R. DALHOUSIÆ, R. THOMSONII, and, indeed, nearly every species.

It is impossible to mention R. FORTUNEI without adding a few words on R. AUCKLANDII, which I seem this year to have proved to be absolutely hardy against winter frosts. The two species are very nearly allied, although the latter comes from Sikkim, and the former from a remote part of China ; but then we know next to nothing of the country lying between.

Mr. Boscawen grows magnificent trusses of R. AUCKLANDII in the open air, of which the GARDENERS' CHRONICLE (see number of May 18th, 1878), says : " It is difficult to find an adjective sufficiently expressive of the majestic loveliness of the flower " ; and Mr. Otto Forster has kindly sent me a photograph of a plant which, in his winter garden at Augsburg, bore 122 trusses of bloom. Unfortunately there is no illustration that I know of which does justice to the splendour of the flower. As the GARDENERS' CHRONICLE, cited above, remarks, even Sir J. Hooker's plate falls very far short of the reality.

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *March 19th*, 1881.

The rich and glossy foliage of R. AUCKLANDII is one of its charms. "The bush" is described as being in its native haunts "copiously leafy," a character by no means too common among Himalayan Rhododendrons.

Identification by leaf.

R. FORTUNEI has inferior foliage, more flimsy, and generally paler; but the two species are so often confounded when judged by the leaves that it may be worth while to be a little more particular. Purchasers of the rarer Rhododendrons can very seldom see in blossom the plants they propose to buy. The first thing, therefore, for a fancier is to study to recognize the leaves. Many nurserymen have collections of young Rhododendron plants raised from unnamed seeds sent from India (I know of several most inviting collections of this sort, and notably one at Mr. W. Bull's, at Chelsea), and tallies get frequently misplaced among plants which live so many years before blooming; hence a critical knowledge of the foliage is very desirable, almost absolutely necessary, for a fancier.

The faculty is acquired by practice, and excites sometimes great astonishment, as I have found, among the uninitiated. I have taken some trouble in procuring and comparing the foliage of the two species named above.

The leaves of R. AUCKLANDII, are thicker, darker, larger, and more elongated than those of R. FORTUNEI, and I have observed that the veins branch from the mid-rib at a wider angle. The under side of the leaf, examined under a lens, seems moreover of a coarser texture. This is my experience, but I speak subject to correction, for a comparison of the plates and descriptions in the BOTANICAL MAGAZINE, and Sir J. Hooker's RHODODENDRONS, is enough to drive one to despair.

Rhododendron species are undoubtedly variable even in their native wilds, but there remains for the writers of the future much to be done in classification and correction of nomenclature. Perhaps some of your readers know whether the two species I have named interbreed. I do not know, but it seems most probable. Both breed very freely with our hardy hybrids, with R. PONTICUM, and I should imagine with R. ARBOREUM. I have already, in your columns, sung the praises of a breed raised between R. AUCKLANDII and the hardy hybrid "JOHN WATERER," in the Lawson Nursery.

Last spring, I received a truss from one of the seedlings possessed of even a stronger perfume than that of R. AUCKLANDII, the scented parent (thus more than confirming the views of Dean Herbert and Gärtner), and yet perfectly hardy.

A plant of the same cross is now swelling for blossom here under glass, and very numerous plants of almost similar parentage are planted in the woods in every possible aspect. It is curious and interesting for a naturalist to observe the prepotency of R. AUCKLANDII, the pollen parent, in the character of the leaf.

In the flower, so far as I have been able to observe, the crimson of "JOHN WATERER" has a hard task to contend with the white of R. AUCKLANDII, although the seedlings vary much in respect of colour.

I have another strain, however, kindly supplied by my friend, Mr. Anderson-Henry, in which the contest is between species and species, and not between species and hybrid. The cross in this case is between R. AUCKLANDII, and R. THOMSONII, the latter being the seed-bearer. The donor says most truly with regard to this breed: "The vigour of THOMSONII'S progeny is wonderful, the leaves being enormous." I believe they have not yet bloomed, but Mr. Luscombe has bloomed several seedlings of a cross between R. THOMSONII and R. FORTUNEI, the fame of which has reached German science, and one of which at least is, in my humble opinion, truly splendid, although inclining to the paler tints. I have some plants of this strain which I hope to bloom, under glass, in a week or two.

Meanwhile Mr. Luscombe (than whom there has been no more enthusiastic Rhododendron grower), informs me that "his first flowering plant disappointed him sadly, but three really good ones, out of twelve or fourteen, have quite satisfied him."

One seedling, named DEVONIENSE, has been presented to Mr. Harry Veitch, and Mr. Luscombe has some hundreds still to bloom. It remains to be seen whether these plants will prove hardy under our skies.

Hybrids more resistent to cold and more tenacious of life.

I shall have great interest in pitting the FORTUNEI hybrids of Devonshire against the AUCKLANDII hybrids of Edinburgh, and both of them against my own hybrids of both strains, hopefully trusting to Gärtner's dictum: "most hybrids can bear a more intense degree of cold than their parents, and have more tenacity of life."

It is known that the late Mr. Standish raised seedlings between R. AUCKLANDII and some of his hardy varieties. Two of these appeared last year at the Horticultural Gardens, and one received a First-class Certificate.

Nothing was said as to their parentage, but to a practised eye it was obvious. The plants were not very well grown, but were said to have stood the severity of winter. They should be shown in better form again.

R. THOMSONII, mentioned above, and named after the distinguished and lamented botanist, whom I had the pleasure and the honour to know, deserves more favour than it seems generally to find. The brilliant crimson of its colour is well nigh unrivalled, and the graceful fall of its bells in a well-grown plant is indeed beautiful. It has shortcomings, nevertheless, which invite to diligent culture for improvement. Seed of this species has been often introduced from various localities in India, and among others by Mr. Elwes, and, still better, plants have been raised from English-grown seed.

Enthusiastic hybridisers seem to forget how much in the way of variety and improvement may be effected by merely breeding their species in Europe true for several generations.

The Rhododendron Society Notes.

Under the altered circumstances of cultivation and climate, seedlings of Rhododendrons, although bred true, vary in an extraordinary degree. Long ago Sir W. Hooker observed that "no one who has cultivated the Himalayan Rhododendron on a large scale can fail to be struck with the numerous sports which have already started off from R. CILIATUM, DALHOUSIÆ, CAMPANULATUM, and ARBOREUM, and which will no doubt soon be accounted as species by nurserymen." The accuracy of this observation has been abundantly proved by much that I have heard and seen.

As far as I can gather, England and Scotland and Ireland, and Belgium and Germany and Italy, will soon have interesting and differing tales to tell.

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *April 9th*, 1881.

R. DALHOUSIÆ.

What shall I say of R. DALHOUSIÆ, named after the unfortunate Lady Dalhousie,* who died of sea sickness on her voyage home from India? The large scented flowers, often compared with the white Lily, L. candidum, command universal admiration; but then the habit of the plant is frequently so bad, so leggy, and so shapeless, that people tire of growing it. The reason of the habit is well explained by the frontispiece to Sir J. Hooker's SIKKIM RHODODENDRONS, where the plant is seen as an epiphyte on the branches of a tree, stretching out to reach the light. Alter the habitat, and you may perhaps modify the habit.

As a fact I have seen many specimens of R. DALHOUSIÆ, shapely and fairly compact, and in a few more generations of plants we may probably reap the fuller result of terrestrial cultivation.

Several other Himalayan Rhododendrons, as distinguished from the Malayan species, often grow as epiphytes, although Focke seems ignorant of the fact.

R. EDGEWORTHII, PENDULUM, and NUTTALLII are instances; whereas on R. CAMPYLOCARPUM an Orobanche in turn grows parasitically.

R. DALHOUSIÆ is comparatively familiar to the Anglo-Indian, for it is one of the four species which grow in the vicinity of Darjeeling. This is probably the species which Colonel Godwin Austen saw growing on trees in parts of Assam. In the HIMALAYAN JOURNALS,† we find the following description: "On the branches of a Magnolia, and on those of Oaks and Laurels, R. DALHOUSIÆ grows epiphytically, a slender shrub bearing from three to six white lemon-scented bells, $4\frac{1}{2}$ inches long, and as many broad, at the end of each branch. In the same woods R. ARBOREUM is very scarce, and is outvied by the great R. ARGENTEUM, which grows as a tree 40 feet high, with magnificent leaves 12 to 15 inches long, deep green, wrinkled above and silvery below, while the flowers are as large as those of R. DALHOUSIÆ, and grow more in a cluster. I know nothing of the kind that exceeds in beauty the flowering branch of R. ARGENTEUM with its wide-spreading foliage and glorious mass of flowers." It suffices to say, in passing, that R. DALHOUSIÆ, under cultivation, has improved upon this description, whereas R. ARGENTEUM has fallen short. But of this latter I shall have more to notice presently.

Here is another description of R. DALHOUSIÆ: "Epiphytes were rarer" (at Pacheem, near Darjeeling, at an elevation of nearly 7,300 feet), "still I found white and purple Cœlogynes and other Orchids, and a most noble white Rhododendron, whose truly enormous and delicious lemon-scented blossoms strewed the ground."

* Susan, wife of first Marquis of Dalhousie, Gov.-Gen. of India, 1847–56. She died 6th May, 1853.

† Vol. I., p. 126.

Seed of this Rhododendron reached England for the first time in the spring of 1850, and to the astonishment of everybody a plant bloomed in March, 1853. This circumstance marks the fact of the amenability of R. DALHOUSIÆ to forcing. Alternate hot and cold were applied to the seedling, and finally inarching on R. PONTICUM, and the blossoms produced were first-rate. The German writer mentioned above accounts for the comparative neglect of hybrids among Indian Rhododendrons by pointing to the great variety of true species. He might have added the extreme beauty of many of these, although not of all (for some, to be presently mentioned, are singularly plain). It may almost seem, for instance, a profanation to think of refining the ineffable delicacy of R. VEITCHIANUM, or gilding the golden glory of R. JAVANICUM, and yet I do not envy the cultivator who has no ambition to leave his own mark among his flowers, for the sake of science as well as for his own. But the truth is that Rhododendrons do not, as a rule, easily submit to hybridising. Hundreds of experiments have utterly failed with me, and, among others, I have not yet persuaded R. DALHOUSIÆ to bear seed under the influence of foreign pollen, but the other way the cross has been often effected.

The first view I had of R. DALHOUSIÆ was many years ago, when a flowering branch arrived from the garden of a friend in Scotland, and it is in Scotland still that Sikkim Rhododendrons are chiefly worshipped.

Miss Walker's Rhododendron Almanac was compiled in Scotland, and many private collections nowadays compete with hers. The Messrs. Dickson, of Edinburgh, grew innumerable trusses of R. DALHOUSIÆ (see the Journals of bygone years). The GARDENERS' CHRONICLE recorded the other day the triumph of Messrs. Downie & Laird, and my friend, Mr. Anderson-Henry, may be said to have made Edinburgh the Mecca of the Faithful, to which we all turn when we think of our favourite flower. Mr. Henry earned the very rare distinction of having a hybrid he raised between R. DALHOUSIÆ and R. FORMOSUM figured in the BOTANICAL MAGAZINE.* If I remember rightly, Sir J. Hooker wrote to say that the hybrid (and such it undoubtedly was) reproduced the native type of flower better than the true-bred seedling of R. DALHOUSIÆ. I have plants and plates of both the flowers before me as I write, and the hybrid is undoubtedly an acquisition. Unlike many hybrids, R. "HENRYANUM" (FORMOSUM × DALHOUSIÆ) so named in the trade, is not barren. With the pollen of R. NUTTALLII it has produced a very grand flower, and with that of R. VEITCHIANUM another grand flower of a very different type. Indeed the peculiarity of the hybrid progeny of R. DALHOUSIÆ would seem to be their fertility. R. "COUNTESS OF HADDINGTON" is a hybrid between R. DALHOUSIÆ and R. CILIATUM, and has proved fertile. I have raised seedlings from this hybrid, and have now bursting into bloom a seedling raised by Mr. Parker, of Tooting, named R. "MAGNIFLORUM," bred, I am assured, from "COUNTESS OF HADDINGTON" fertilized with pollen of R. EDGEWORTHII. It should be observed that there are various types of R. DALHOUSIÆ in cultivation; in some the flowers are inferior, greenish, or dirty yellow, in others the bad

* Plate 5322.

habit is exaggerated. In GARTENFLORA, Vol. XIV., 21, a R. "LINDLEYI," raised by Stanwick, is mentioned, which seems to be a dwarf type of R. DALHOUSIÆ.

In two different places double flowers* of R. DALHOUSIÆ have been produced. I have not seen them, but they are much praised, and indicate the tendency of the species towards variation. Mr. William Bull and Messrs. Henderson have some interesting seedlings. The best grown plant of the species known to me in the neighbourhood of London is now about to bloom in the Nursery of the Messrs. Jackson, of Kingston; but I shall be very glad to hear of other fine specimens, and any peculiarities connected with them.

J. H. M.

* Mr. Knight, of Floors Castle, reported a double-flowered R. DALHOUSIÆ in the GARDENERS' CHRONICLE, for June 5th, 1880.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *May 7th*, 1881.

Indumentum.

Any one who studies the genus Rhododendron will very soon find a foliar distinction which will strike him forcibly. He will learn to divide his species into those with scaly leaves, and those with leaves without scales.

There is perhaps also an intermediate class, containing those which bear scales on the under, but not on the upper surface of the leaf. The student will find that geographically these classes can be only roughly divided. They are united in the Himalayas on perhaps a fair equality. The scaly type prevails in the Malayan region, the scaleless in America, where, however, R. PUNCTATUM and others of the different type are found. The tropical and alpine species are mostly scaly, the temperate mostly scaleless. The arborescent Rhododendrons are, I believe, scaleless, while the shrubby ones, and the dwarfs, and the epiphytes are very often scaly. As to the annually deciduous species they are, I think, all scaleless. Although the nature of these scales is by no means the same, yet they present a tolerable uniformity, and afford certainly a very valid character, all the more because they have a tendency to spread to the flower-stalk, the calyx, and even the corolla.

Most interesting to the naturalist, they are useful to the hybridiser, for they may reveal the tale of a successful cross in the first development of the plumule of a seedling. For the present it must suffice to say that these scales differ from the hairs, tomentum, glands, and bristles which beset the leaves of so many Rhododendrons at various stages of growth, and which last give so singular an appearance to R. BARBATUM and R. CHAMPIONÆ. They furnish, moreover, an excellent illustration of the desirability of examining younger leaves and younger plants than are often found in a herbarium, for the older leaves and the older plants are apt to shed their scales in a misleading way, as is very accurately pointed out by Beccari in his MALESIA. I venture to think, for instance, that R. NUTTALLII would not have been excluded from Maximowicz's "lepidota" had the young, and indeed, the old leaves of small seedling plants been examined, as I am now examining them, under a lens, and the profusions of beautiful crimson, brown and green scales observed on the upper surface of the leaf, as well as underneath (the BOTANICAL MAGAZINE says the leaves "are much paler beneath, and there partially covered with numerous minute circular peltate resinous scales") been seen. If embryology is important, so is the observation of the condition of young plants and young leaves, and the greenhouse may well supplement the herbarium; but awaiting the forthcoming number of the FLORA OF BRITISH INDIA, I will not venture to say more. R. EDGEWORTHII, which I wish to discuss with your readers, must plead my excuse for this long introduction.

In no botanical description have I found any indication that it belonged to the scaly type of Rhododendron, as from its breeding affinities was clearly to be

surmised. In the case of other species the scales are always treated as an important character, and properly so ; but with R. EDGEWORTHII it is the rugosity of the leaves, the profusion of tomentum, so that in breeding between it and R. FORMOSUM, for instance, it might have been inferred from the books that a cross had been effected between a scaleless and a scaly species.

Nevertheless, on carefully rubbing away the tomentum from the under-surface of a mature leaf, and placing the leaf under a microscope, I found plenty of scales ; and further on examining the young leaves of seedling plants, I found also scales on the upper surface. When I come to describe the hybrids raised from this species, the importance of these facts will be apparent.

But first, a few more words of description for the species itself, which bears a name classical for Englishmen. It is in fact named, not after the well-known authoress herself, but after her brother,* an Indian civilian of botanical tastes and acquirements, whose book on pollen and other writings are probably known to my readers. The character of the foliage of R. EDGEWORTHII has already been partly indicated. The leaves are comparatively small, rugose or wrinkled, covered underneath with a thick rusty tomentum, which spreads to the stalks and branches.

They have been compared to those of R. PENDULUM (? CAMELLIÆFLORUM) and R. RUGOSUM, and are highly ornamental as well as the flowers. These last are very large for a plant of so dwarf a habit, as large or nearly so, as those of R. DALHOUSIÆ, and more strongly and deliciously scented. The tube of the corolla is not so long, and the general shape more open and cuplike. There is an excellent illustration in Hooker's SIKKIM RHODODENDRONS, and a very inferior one in the BOTANICAL MAGAZINE. The tinge of colour in the white is generally rose instead of yellow, as in R. DALHOUSIÆ. Although also an epiphyte, but growing generally upon Pines, its habit is unlike, and the character of the root seems different from that of R. DALHOUSIÆ, which resembles in this respect the Bornean and Javan races as described by Mr. Low. It is a species which ought to be grown in many greenhouses, requiring just the temperature suiting Indian AZALEAS, or a cooler one.

I have grown plants out-of-doors, and they have survived several winters, but not comfortably. Small plants are easily procured from the nurseries, but larger ones are scarce. In fact, it is only of late that the taste for Sikkim Rhododendrons has revived. I have lately seen at Messrs. Williams', of Holloway, a fine large plant (among other fine Rhododendrons), naturally grown, which shows that it need not be tortured and twisted round a wire trellis in the usual horrible way. There is a very interesting plant also at Kew, under the trusty care of Mr. Binder in the Temperate-house. It stands in a bed at the north-east corner, and is all the more interesting because surrounded by the most unlikely congeners, almost a pigmy among giants, and so different in appearance and habit. There, behind it, stands the stately R. ARBOREUM, a forest tree ; R. BARBATUM and AUCKLANDII, tall saplings ; mighty bushes of R. CALOPHYLLUM and R. JENKINSII of two or more types ; R. MADDENII, larger still ; and R. FORMOSUM, of goodly proportions. Further on is seen R. FORTUNEI,

*Michael Pakenham Edgeworth, born 1812, died 1881.

the miserable, and R. FULGENS used to stand beside, but has now disappeared ; nor let the visitor omit to notice the grand leaves of R. NUTTALLII, and of a young plant of R. AUCKLANDII, and then let him come back to R. EDGEWORTHII, inferior to none, though less imposing.

R. EDGEWORTHII is in truth so beautiful and so unique that it must have required some courage to think of blending it with other species, unless for the sake of experiment, or to infuse hardiness. My sympathies, however, are not exclusively with the champions of natural species, nor with the hybridisers, but with both. I am for giving fair play to both, and it is not because I admire enthusiastically R. EDGEWORTHII that I would depreciate such an excellent and useful hybrid as R. "PRINCESS ALICE," bred from R. CILIATUM, with pollen of R. EDGEWORTHII. The hybrid is certainly hardier, freer in blooming, more compact, and scarcely, when well grown, inferior in flower.

I have lately in your columns described the double origin of this plant. More dwarf, and perhaps more sweet-scented, are the various hybrids raised between our species and R. MULTIFLORUM. R. "SESTERIANUM" was raised by Rinz & Co., of Frankfort-on-the-Maine, from R. FORMOSUM (otherwise GIBSONII), with pollen of R. EDGEWORTHII. It is a truly excellent and lovely flower, with a yellow instead of a roseate tinge. Many types of the same cross are in cultivation, of which "DUCHESS OF BUCCLEUCH," as grown by Messrs. Downie & Laird, of Edinburgh (to whose grand show of Rhododendrons I must presently relate my visit), is perhaps the best.

R. "MAGNIFLORUM," between R. EDGEWORTHII and "COUNTESS OF HADDINGTON," was raised by Mr. Parker, of Tooting, and has produced with me open flowers, pure white, and of a large size. And last, but not least, I must mention R. "FORSTERIANUM," raised by Mr. Otto Forster from R. VEITCHIANUM fertilized with pollen of R. EDGEWORTHII.

Of this last I have had excellent experience, having seen for the last two years or more, plants of great beauty at Messrs. Veitch's ; but a short time since a case, 8 feet long, reached me from near Vienna, containing several very fine plants, presented to me by my munificent friend. So well were the plants packed that in a few days after their arrival they were in full bloom and the admiration of everybody. The flowers were of an exquisite lemon or primrose tinge, very large and scented, and inherited the ineffable delicacy of R. VEITCHIANUM, with more substance—in fact, they were more like a Rhododendron and less like an Azalea, although all are Rhododendrons now.

Inheritance of tomentum by hybrids.

The foliage is intermediate, but it is a curious fact that none of the hybrid progeny of R. EDGEWORTHII inherit, when mature, the thick tomentum under the leaf, but when young most of them show it. In mature plants it is best to examine the pedicel for traces of EDGEWORTHII blood. I must now close with two practical observations.

1st.—In all the hybrids from R. EDGEWORTHII, of which I know, our species has been the pollen parent, never the seed-bearer.

2nd.—All the well-known and vigorous hybrids are derived from unions with scaly species. Unions with scaleless species are, I confess, not unknown to me, but they are far more difficult to accomplish, and produce weaker offspring; whereas the seedlings of the other cross are often even more vigorous than true-bred seedlings of either species. It must not, however, be supposed that I am in a position to lay down any general law, at all events at present, on this point.

J. H. M.

P.S.—Since writing the above I have been to Kew, and find that the small plant of R. AUCKLANDII has burst into bloom, and such bloom! Mr. Binder measured for me a single flower, and it was $6\frac{1}{2}$ inches across.

Four trusses have seven flowers each, and others less. The unopened flowers have a tinge of rose.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *May 28th*, 1881.

Being in Edinburgh early in April last, I did not omit to visit some of its Rhododendrons. Unfortunately I had not time to visit all.

Mr. Anderson-Henry's Rhododendrons.

To begin with my ever-hospitable host, Mr. Anderson-Henry, he had, among others, a remarkably fine plant of R. FULGENS in full bloom in a cold house. The brilliant scarlet of this species is almost unrivalled, and the truss is much more compact and fuller than that of R. THOMSONII, which in colour it resembles. The leaves are clothed beneath with a dense coppery tomentum, after the manner of R. CAMPANULATUM and BATEMANNII. A good figure is to be found in the BOTANICAL MAGAZINE.* Its early habit often prevents success, when it is treated as a wholly unprotected plant; but very slight protection suffices. Mr. Henry's plant was in a pot, and not many feet high, and yet covered with a profusion of blossom. I have never seen a better type of the species.

Mr. Boscawen has also a very fine plant, but of my pleasant visit to his plants more anon.

An interesting Rhododendron was blooming close to Mr. Henry's front door. The interest lay in the probability of its being a new species. It was labelled as having been raised from Indian seed, but we could not identify it. We thought it might be a natural hybrid. It had something of the character of R. THOMSONII, yet was very distinct. It should be watched when blooming in better form than after the late cruel winter.

Natural hybrids.

This last paragraph raises a most important question, viz., how far natural hybrids prevail among Rhododendrons. We know that under cultivation many very distinct species freely interbreed and produce fertile progeny. We know that some of these species grow side by side on their native mountains. I have written to my correspondents near the spot, in the hope that they will investigate this question, which is of very great interest in connection with a genus so prolific of species growing in proximity. Sir J. Hooker, said of SIKKIM: "What surprised me more than the prevalence of Rhododendron bushes was the number of species of this genus"; and Beccari said of Borneo that almost every mountain peak had its own special forms. I trust to be in a position some day to lay further information before my readers.

Rhododendrons at Messrs. Downie and Laird's, Edinburgh.

The Rhododendrons of Messrs. Downie & Laird, of Edinburgh, are well known, but their Easter show quite astonished me. In their winter garden (which every one should visit), stood splendid plants of hardy hybrids in full bloom, such as one rarely sees anywhere, and which betokened years of care and skill. From the street the view was brilliant, and, on entering, quite dazzling. Trees 10 and 12 feet high, and many feet through, stood up and down and across the large glasshouse, and all seemed to be at their best—pictures of health and vigour, and ablaze with blossoms. I found out later that these plants were not the first, nor would they be the last, in the succession of Rhododendrons which this house displays every spring. "JOHN WATERER" and "MICHAEL WATERER" were there, of course, and

* Plate 5317.

"Lady Eleanor Cathcart," that most Pelargonium-like of Rhododendrons, "Sir Joseph Whitworth," "Sir R. Peel," "Auguste van Geert," "Lady Falmouth," "Camille de Rohan," and many more.

Among whites were "Mrs. John Clutton," and a very fine form or hybrid of R. arboreum album, densely spotted. "Broughtonii," which carries the largest truss I know (except that of a stupendous hybrid in the Temperate-house at Kew), had gone by, and been removed, together with "Grand Arab" and other early scarlets; but I saw the plants later at the nurseries.

Mr. Downie, by years of skilful treatment, has induced a habit of early blooming in these his show plants, so that now with very little heat they bloom in the earliest days of spring, keeping all their brilliancy of colour. At the back of the house I found a splendid plant of a scented Rhododendron, called "Duchess of Buccleuch," evidently a hybrid of the "Sesterianum" breed.

Large white flowers, flaked with delicate primrose, covered the bush below in hundreds, while above rose a mass of yellow buds in a later stage of bloom. Not far off was R. "fragrantissimum,"* another hybrid of a similar type, not so large, but very fragrant.

Young Mr. Laird took me out to the nurseries, where amid multitudes of herbaceous plants, the grand Rhododendron specimens are prepared for the public eye.

I was much pleased to see the attentive care bestowed on them, and what a thorough Rhododendron fancier Mr. Downie is. He showed me plants of R. Veitchianum and javanicum and Veitch's "Princess Royal" (which last had bloomed for six months continuously), and a very fine variety, or perhaps species (the flowers were unfortunately over), with Falconeri leaves but argenteum blossoms, which Mr. Downie had named "Lady Balfour of Burleigh." Large trees of R. Dalhousiæ and hybrid "Countess of Haddington" were not yet in bloom, but I received the last truss of the king of hardy Rhododendrons, "Broughtonii."

Mr. Laird kindly accompanied me to a private collection, where I saw that curious Rhododendron of the Malayan type, R. retusum.† The flowers, small and tubular, are coral-red, not unlike those of some Fuchsias. I find that it will thrive in a temperate house, although a little more heat is desirable.

Mr. Davies, of Ormskirk, has, I hear, mated it with R. javanicum. R. Thomsonii was in bloom in the same collection, and a form of Calophyllum or Jenkinsii in bud, under the name of R. "Walkeri."

By this remark I do not mean to imply that Calophyllum and Jenkinsii are one and the same species, but that I am awaiting the distinctions which Mr. C. B. Clarke will probably explain.

My visits to the Botanic Garden, the Lawson Company, Messrs. Dickson, of the Pilrig Park Nurseries, and Messrs. Backhouse, of York, I hope to describe in my next.

J. H. M.

* ? Edgeworthii × formosum.

† Figured in Bot. Mag. 4859, and Flore des Serres X. pl. 1044

GARDENERS' CHRONICLE, *June 11th*, 1881.

RHODODENDRONS AT LAMORRAN.

A journey from London to Truro is no joke, but I determined to take it a fortnight ago for the purpose of seeing Mr. Boscawen's Rhododendrons.*

Apart from his kind and very hospitable invitation, I felt that I was bound to pay my respects to one who had long preceded me in the culture of our favourite plants, who "had been collecting the species and hybrids for nearly forty years," and who was, doubtless, able to show me many interesting specimens, and give much valuable information. Fresh from the Rhododendrons of North Britain, I was well pleased to see those of Cornwall also. I broke my journey at Exeter, where I visited the very excellent flower show.

Mr. Robert Veitch took me over his nursery, which carried off at Kensington the other day a First-class Certificate for R. EXONIENSE. Of this hybrid (R. CILIATUM crossed by R. VEITCHIANUM) I saw a plentiful young stock. I had previously seen the show plants in town, and hailed the award as an encouragement to Rhododendron growers. If my opinion is of any value, I can testify to the accuracy of the description, having myself raised seedlings of the same cross. The size of R. VEITCHIANUM is lost, but the plant is compact, neat, and very floriferous, and the foliage is highly ornamental.

Mr. Boscawen lives some eight miles from Truro. My drive from thence lay through woods blue with Bluebells, and hedgerows pink with the red Lychnis, and then through Lord Falmouth's Park. A steep dip through woods brought me to the house, which stands near the bottom of the narrow valley, with a sheet of purest water, famed for trout, below. The Rhododendrons and the Pinuses clothe the steep slope behind the house, and the former fringe the wooded heights on the other side of the water. This narrow wooded valley opens into the valley of the river Fal, and the sea is a mile or two away. The soil is not naturally favourable for Rhododendrons, but Mr. Boscawen has found, as I have, that leaf-mould and cow-dung can do wonders. Good peat is scarce and very expensive, and yet many of the plants seemed to be models of health and vigour, with very little peat, I fancy, to grow in. The winters, too, are not so gentle,

* Rev. The Hon. John Townshend Boscawen, the brother of the late Lord Falmouth and Rector of Lamorran, a very small living within the grounds of Tregothnan. He died in 1889, and his Rhododendrons and other plants were then sold. A large majority of them thus passed into Cornish hands and many are still alive.—C.C.E.

nor the spring frosts so infrequent, as some dwelling further north are apt to think.

Thirty odd years ago excellent Barley grew where Pinuses and Rhododendrons now lord it over the valley. The first thing done was to plant a belt of Laurels, so as to break the wind rushing along the valley and over the water. Thus screened, I found giant specimens of the best of our well-known hardy hybrids, and many a seedling of my host's own raising. Some of these had grand trusses and striking foliage, and several seedling yellow Azaleas were very brilliant.

Here and there large bushes of R. (AZALEA) ALBUM* INDICUM proved that this plant is with Mr. Boscawen, as it is with me, as hardy as any shrub. In a quiet nook I found R. GLAUCUM in bloom. Above rose what may well be called the hanging gardens of Lamorran, and below lay the clear water, crisped by a slight breeze, and with its Water Lily plants glancing in the sun.

My first lesson was soon learnt, and that was, not to hybridise indiscriminately with R. CAMPANULATUM. My host had been exterminating many of this breed, and the faggots lay around.

Winding up the hillside, through a wild garden strewn with patches of Lilies of the Valley in full bloom, and perennials and bulbs sprouting through the grass, which had buried innumerable crocuses, and shaded now by a lofty Taxodium† sempervirens, and now by an 80 feet Pinus insignis, and now again by a Copper Beech, we slowly made our way up through the Rhododendron and Azalea jungle. It has been my fortune to wander through many a jungle, but here was a jungle with a plan. Every plant had a history and a pedigree, and the owner was at hand to name the children of his own rearing and point out their virtues with a parent's just enthusiasm. Among the seedlings I noted "BLUEGOWN," of a bluish tint, which flowered first when Bluegown won the Derby, and "BEN," a brilliant crimson. That very fine white, "MRS. TOWNSHEND BOSCAWEN," which won a First-class Certificate two years ago, was not in bloom, but a sister seedling in the same style deserved and received much praise. Shaded by a tall Pine from the morning sun (that fatal morning sun which plays such havoc among frozen shoots and blossoms), stood a stout plant of R. BARBATUM, which I was very anxious to see. A melancholy interest attached to the spot, for poor Mr. Arthur Veitch had described to me in glowing terms his visit to it in March of last year, when this Rhododendron was ablaze with fiery blossom. The plant this year had refused to bloom at all, but the winter had not destroyed its vigour, nor the spring frosts cut the shoots. I hope to see it another year in all its glory. Mr. Boscawen mentioned distinctions between this plant of R. BARBATUM and another growing elsewhere in the garden. We had not time to examine them, but let me refer my host to tab. 5120 in the BOTANICAL MAGAZINE, representing R. SMITHII, a species discovered by Mr. Booth, in Bhotan, and having much affinity with R. BARBATUM. When will other owners of rare Rhododendrons take the trouble to get observed and recorded all such interesting variations, without the accumulation of which and their history the species of this genus

* AZALEA LEDIFOLIA var. LEUCANTHA. † SEQUOIA.

can never be properly worked up ? Still winding up the grassy slope, where the Rhododendrons and Azaleas were ever and anon varied by a Palm, a crimson Maple, or clumps of Lilium giganteum, with last year's flower-stalks towering aloft, we reached R. FULGENS, in great beauty, not of blossom but of foliage, the young shoots brilliant with crimson bracts.*

The plant was a picture of health, although no fine blossoms were visible, nor the curious plum-coloured capsules so characteristic of the species.

For the former I was too late, for the latter doubtless too early. Alongside, to my utter horror, stood the blackened skeleton of what I had long hoped to see, that plant of R. AUCKLANDII, over trusses of which the editorial pen of this journal (May 18th, 1878), had indulged in unmeasured ecstasies.

The classic plant seemed not absolutely dead, but blasted and black. Was it the frost ? Was it an untimely removal ? Was it lack of nourishment ? My host seemed in doubt. Who can describe our lamentations over the ruins, which I am to try, however imperfectly, to replace out of my home nursery ? A consolation was at hand. Hard by I spied the most charming little bush of R. CAMPYLOCARPUM I ever beheld. No wonder that Sir J. Hooker fell in love with the species ! About three feet high, I think, the bush was covered thick with its primrose bells, not quite so yellow as those I had seen in Edinburgh, but exquisitely lovely. This sight alone well rewarded me for my long journey, and I must impress upon my readers that this species seems to be exceptionally hardy. With me the young shoots, often tenderer than the blossoms, have resisted frosts before which those of R. THOMSONII, its nearest ally (the sheep browse on both on their native mountains), have succumbed.

Still I must beware of falling into the common error of generalizing from an experience of only four or five plants of either species. I cannot too often repeat that seedlings from even the same batch of seed greatly vary in point of hardiness, and that different years affect different plants in an inscrutable manner. One is taken and another left, we scarcely know why. The moral of course is : " Grow plenty of specimens, and plant them in different situations."

Two plants of R. THOMSONII were next examined, and various smaller ones of Sikkim and Bhotan species, but I saw no more in bloom. Mr. Boscawen has much valuable lore on the early history of Rhododendron culture in this country, and I dare say the garden at Lamorran will often furnish me with a fact or an illustration in a future paper, but I feel I must not now trespass longer. As we retraced our steps I was able to identify for my host a flowerless branch of R. FORTUNEI, obtained in the neighbourhood (which I hope next year to explore with him), and I was astonished to learn that R. FORMOSUM had weathered many winters in the open air.

A word on this before I close. R. FORMOSUM is, be it observed, a native of comparatively low mountains in a hot climate (I am now hunting up in Griffith's ITINERARY and journals and elsewhere all I can find about it), and I have always assumed it to be a tender species. It never rains, however, but it pours,

* Not bracts but scales of the leaf bud.—I.B.B.

for on my return from Cornwall I found a plant, almost leafless, but blooming, in a Torquay garden, and in the pages of a contemporary I saw last week the species recorded as hardy in Argyleshire. Moreover, Mr. Charles Smith, Jun., of Guernsey, famous for his Ixias, and a most intelligent young man, to whom it was a real pleasure to show my plants, informed me that R. FORMOSUM was hardy in his island.

It would be very interesting to obtain, and I should be grateful for any further information tending to show the hardiness of this species, which is sometimes called R. FORMOSUM and sometimes R. GIBSONII ; but let informants be careful to identify the species. I was once mightily amazed to hear that R. MADDENII was hardy ; on enquiry and inspection it turned out that the plant was not R. MADDENII at all, but a hardy variety called MADDEN'S ARGENTEUM !

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *June 18th*, 1881.

Each time I visit the Edinburgh Botanic Garden I admire them more and more, although on the first occasion Professor Balfour kindly did the honours, and showed me all the treasures, including magnificent views over the modern Athens. But I must confine myself to Rhododendrons, as I saw them early in April. Rhododendrons at Edinburgh Botanic Garden.

In the shrubberies there was blooming R. DAURICUM, which often gives, and gave me this year, a gleam of brilliant colour across the snow. This species and RHODORA CANADENSIS should be oftener seen than they are. I did not observe very many signs of havoc among the hardy Rhododendrons. Indeed, I have learnt to envy, in some respects, the climate of North Britain for these plants. The foliage of many, however, and the buds of some, told the tale of the cruel winter through which we have passed, but from which we are emerging, if the truth be told, better than we expected.

In the houses I found that Rhododendrons were not neglected, R. NIVEUM and several of the ARBOREUM and CAUCASICUM type were in bloom, and there was good promise of bloom from R. NUTTALLII and DALHOUSIÆ. I have since received stamens of both these species, but containing little or no pollen, strikingly different in this respect from those received from South Britain.

I observed last year the same imperfect development of the stamens of R. NUTTALLII, received from Edinburgh. Is it attributable to the climate, in which I am told KALMIA LATIFOLIA has ceased to bloom ?

A large plant of R. "WALKERI" (so-called) came, I believe, from the famous collection of Miss Walker, which was broken up and sold at her death.

In a house in the garden of the Lawson Company the beautiful primrose bells of R. CAMPYLOCARPUM were opening. Sir J. Hooker says of this that "when loaded with its inflorescence of surpassing delicacy and grace it claims precedence over its more gaudy congeners, and it has always been regarded by me as the most charming of the Sikkim Rhododendrons." Nurseries at Edinburgh.

Messrs. Dickson & Co. take a lively interest in the culture of greenhouse Rhododendrons. A very fine plant of R. THOMSONII was in bloom, and there were large specimens of R. LONGIFOLIUM* and R. HODGSONII, which last is a rare and beautiful species. R. LONGIFOLIUM is perhaps the shyest among all the shy bloomers of Sikkim Rhododendrons, and I do not recommend it to elderly amateurs, to whom, however, the grand foliage, silver beneath, offers no slight compensation.

Grafting may doubtless mend this habit, but I have painful recollection of the many years Mr. Binder, of the Temperate-house at Kew, and I, have watched for bloom on our respective seedling plants of the species. Messrs. Dickson

* R. LONGIFOLIUM was one of Booth's plants, see Article from THE GARDEN, April 8th, 1882, below.—I.B.B. Figured in BOT. MAG. 6948.

have many more Rhododendrons which well deserve notice, and among others a seedling hybrid with scented leaves, the blossoms of which were kindly sent to me here, but arrived, unfortunately, in too imperfect a condition to enable me to judge of their excellence.

Before my pen leaves Scotland, let me thank Mr. Henry Knight for his remarks on hybrid Rhododendrons, and their powers of endurance. I hope before long to furnish my readers with a list of the hardiest of the hardy hybrids. I, too, have been astonished this spring to observe the glorious scarlets and purples and whites offering so brilliant a display.

At Messrs. Backhouse's, York.

On my return South, I visited Messrs. Backhouse's Nursery at York, and it was interesting to find that Mr. Backhouse, too, had a strong taste for Rhododendrons, but the Alpine species were naturally his special hobby. He was anxious to learn all about R. FULGENS, which was growing, though not blooming, on his rockery, and in a private corner he showed me young plants of R. CHRYSANTHUM, that very rare yellow species. This seemed the very place for the Himalayan Alpine kinds, such as R. NIVALE and R. PUMILUM, and other tiny beauties to thrive in company with R. CHAMÆCISTUS and the well-known ROSES DES ALPES, of which I bought a white variety. From these reminders of the abodes of snow I stepped into a house, and found before me an unusually fine plant of R. VEITCHIANUM, which carried me at once to the tropics, so truly catholic is this genus and so calculated to interest every type of horticulturist with some one or more of its 130 (see GENERA PLANTARUM) known species!

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *July 9th*, 1881.

Knap Hill.

A lover of Rhododendrons visits, as a matter of course, Mr. Anthony Waterer's Knap Hill Nursery, near the Woking Station. So well known is this garden, that I need almost an apology for saying anything more about it ; yet, perhaps some who have seen Mr. Waterer's Rhododendrons in Hyde Park and the Botanic Gardens, may fancy that they have seen all that they could see at Knap Hill. Such is not the case, however. Acres upon acres at the Nursery are covered with the finest specimens, and the most interesting and beautiful seedlings. The mass and breadth of colour, the variety of tints, the luxuriance and " abandon " of growth, the happy intermixing of Pinuses and other trees, raise the place to the dignity of one of the show places of England. As spring passes away into summer, the prevailing tints of this fairy spot shift and change like those of the dying dolphin. In the earliest days of early summer (and before), all is aglow with the crimson hues drawn by the subtle hybridist from Rhododendron ARBOREUM and its allies. At such a time, in olden days, before the commons were curtailed, one saw with the laureate—

" A crimson cloud,
That land-like slept along the deep,"

the deep being the Heather in its dark and gloomy spring attire. As summer advances, the purple tints derived from R. PONTICUM and CATAWBIENSE, with bold patches of dazzling white, obtain predominance. Then, too, the oranges and yellows and scarlets of the AZALEAS feast the eye, and perfume fills the air. Last of Flora's gifts comes the coral KALMIA, red or pink, according as it is bud or blossom, and resting on its cool dark green foliage; and then, as notable a sight as any, the uprising and unfolding of the young and tender shoots of the tens of thousands of Rhododendron trees and bushes. Some are of the tenderest green, others yellow-brown or rich with pink or ruddy hues. Some wave bright scales which presently wither and fall away, and all cover up their now rotting and unsightly blossoms with this fresh development of beauty. I know not but that this is as interesting a sight as any.

The name of Waterer (both of the Knap Hill and Bagshot Nurseries), has been so identified with the culture and extraordinary improvement for gardening purposes of our most showy shrub, that I have often wondered that it has not been embalmed as the name of some Rhododendron species, which will live when hybrids, however showy and magnificent, have been superseded, and John and Helen and Frederic and Michael Waterer have yielded to newer names. It had rained all day till 4 o'clock, but the clouds cleared off and the sun shone as my brother and I reached Knap Hill, and did homage to the splendid Douglas Fir near the gate.

The crimson period of the garden was just changing into the purple. As proof of this, a gigantic bush of an early PONTICUM flanked by two whites at once caught the eye. The effect was surprisingly superb, and taught the lesson,

too often forgotten by planters, that much white is needed to bring out the tints, and that the common kinds may produce wonderful results when judiciously arranged.

Presently, "LADY ELEANOR CATHCART,"* although the bloom was somewhat on the wane, seemed to assert, in contradiction of the remarks above, that a hybrid might live and reign for ever. Entirely unsuperseded she certainly remains, and strange to say, has refused, so far as I know, to transmit her charms to any of her descendants, who are mostly wishy-washy in the extreme. I have always believed in the descent of this variety from R. MAXIMUM, a species curiously misnamed, and not often seen, although both late and hardy. As we passed on the colours changed at each opening. Standards and dwarfs and lusty bushes were alike loaded with bloom, and the winter and the drought had done apparently little or no harm.

In truth, an elaborate system of artificial irrigation had supplied the needful moisture, and I fancy that the hedges had warded off some of the cruel winter's rage. A nursery garden has always a somewhat formal air about it, but as we strolled from close to close, shut in by tall hedges, each seemed to sparkle like a perfect jewel, for the raindrops were upon the blossoms, and the arrangement in heavy masses suits the quality and growth of our plants. I need not say that some of the Azalea closes were heaped up, as it were, with burnished gold, or heaved with billows of vegetable fire. But the grandest view of all was from the top of the long avenue, which appeared to fade away in the dim distance, an endless vista of pines and ornamental trees, bedded in sheets of purple, crimson, and white Rhododendrons, and of every intermediate hue.

In gardens devoted to some particular plant it is interesting to see the original seedling plants of famous kinds, from which has been propagated the stock to people, so to say, the whole earth.

Mr. Waterer's firm has raised and sent out many of the best of our old and new favourites, such as "BRAYANUM," "BARCLAYANUM," "EVERESTIANUM," "STELLA," "MRS. CLUTTON," "MRS. HOLFORD," "MRS. HANKEY," and "MARSHAL BROOKS." We saw the seedling bushes of some of these dear and familiar friends, and rare trusses of "H. W. SARGENT" (one of the best), "THE MOOR," "SIGISMUND RUCKER," "RALPH SANDERS," and others, good in flower and in foliage. Doubtless many of my readers have observed the "MARCHIONESS OF LANSDOWNE" (rose-colour, with very black spotting), in Hyde Park. I know very few better Rhododendrons. Of unnamed seedlings we were shown many hopeful youngsters of varying types, destined to make a noise in the world.

When one considers how this wealth of hardy hybrids springs from the blending of only two or three of our numerous species, and some of these by no means the hardiest, one is filled with astonishment at the variety and the endless progress. Well may one ask whether the other species, as yet almost untouched, may not yield, in due time, as rich a harvest ; but I must return to this fruitful

* The pink of this hybrid appears to be unique. Is the parentage known ? My enquiries suggest MAXIMUM × ARBOREUM.—C.C.E.

subject presently. In the existing strain, progress with the dazzling crimson type seems just now somewhat at a standstill, short of realizing, it must be confessed, the peculiar scarlet of the true ARBOREUM in a hardy form. Meanwhile, strenuous efforts are being made to produce Pelargonium-like flowers, with dark and contrasting markings, or with coloured edges and white centres, and the purples are again coming into favour. Striped flowers are scarcely yet contemplated, but I heard of a double crimson.

Azaleas at Knap Hill.

The Azaleas at Knap Hill are a very marked feature of the garden, I never saw a finer or more varied collection. Here we get the tints, which as yet are unattainable among the hardy hybrid Rhododendrons—orange, fiery scarlet, and yellow, and white, which is common to both, and indeed to nearly every other flower. Nothing can be more charming than a thicket of these gorgeous and perfumed plants, so different at first sight, and yet so nearly allied, or rather identical in genus, with the Rhododendrons. Year by year the size of the flowers increases and the colours vary in Mr. Waterer's skilful hands, and now he has many examples of a double race, which among other merits, last longer than the single sorts. The yellow hose-in-hose-like variety (A. NARCISSIFLORA)* has proved with me most admirable as a forcing plant.

Those who have largely grown Azaleas know that they have what may be called two seasons—the first for their flowers, the second for the autumnal tinting of their leaves.

In the autumn Knap Hill must again be lit up with brilliant colours in the Azalea grounds.

Some Azaleas turn crimson, others purple and yellow and bronze, and for a week or two delight the eye.

But, alas! the glory is short-lived. The frosts and the winds soon tear off the glowing leaves, and for the winter Azaleas cut but a sorry and meagre figure among their Rhododendron brethren.

I must now apologize to Knap Hill for many sins of omission. My remarks are merely Rhododendron notes, and not detailed accounts of anything. Having related my visit to Mr. Anthony Waterer, in the open air of Woking, I propose shortly to change the venue, and interview Mr. John Waterer, of Bagshot, and his plants under his tent in London.

J. H. M.

* R. NARCISSIFLORUM (AZALEA NARCISSIFLORA) is a double white LEDIFOLIUM sent by Fortune to Standish and Noble who named it. See GARDENERS' CHRONICLE, 1858, p. 242; Fl. d. Serres IX. (1853-54), 82.—I.B.B.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *July 9th*, 1881.

RHODODENDRON CALIFORNICUM.

In the American Forests Report which appeared in your last number, Professor Sargent speaks of RHODODENDRON CALIFORNICUM, and asks "has this plant been cultivated?" Yes. It was collected by Lobb, Messrs. Veitch's collector, and shown in 1855, and has been generally distributed by that firm; it is delicate pink with very dark leaves. My plant bloomed this year. Last year I crossed it with hardy hybrid JOHN WATERER, and have a potful of seedlings. (See BOTANICAL MAGAZINE, tab. 4863).

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *July 23rd*, 1881.

Of all vegetables of any size none lend themselves more freely to transplantation than Rhododendrons.

Except during a hard frost, or when the plants are actually in bloom, or when the young shoots are in the tenderest condition, there is scarcely a day in the year when they may not be transplanted with impunity.

John Waterer's Annual Show.

Both the Messrs. Waterer have turned this peculiarity to most excellent account by creating each year in London what may be called a Rhododendron garden, rather than a show. The Hyde Park display is comparatively modern; but the huge tents, such as Mr. John Waterer's in Cadogan Place, are now almost to be numbered among the ancient sights of Londoners. It may seem very unnatural and inartistic to have beds, and banks, and shrubberies of planted Rhododendrons, with gravel walks and turf edgings, and the ups and downs of a real garden, confined for weeks together under canvas; but, in fact, it is very convenient in more ways than one. Many see the flowers who would not travel to the distant gardens.

The plants brought up to town in bud, open well, and safe from casualties under cover. They last much longer when thus protected from sun, and wind, and rain, and insects; and it must be added that the beauty of some of them is enhanced by the shade.

The crimsons and the pinks, the predominant colours, glow more brilliantly, I think, under canvas; the purples, on the other hand, as one might expect, are somewhat dulled by the sombre light. Be that as it may, however, few could enter into these Rhododendron temples nowadays without a cry of admiration. One seems transported into a world of colour.

"In the Zemu Valley," writes Sir J. Hooker: "Rhododendrons occupy the most prominent place, clothing the mountain slopes with a deep green mantle glowing with bells of brilliant colours. Of the eight or ten species growing here every bush was loaded with as great a profusion of blossoms as are their northern congeners in our English gardens." Before a picture such as this—I pray my readers to imagine it—a mountain valley glowing with the brilliant bells of eight or ten distinct Sikkim species—say R. FULGENS, THOMSONII, ARBOREUM, CAMPBELLIÆ, CAMPYLOCARPUM, ARGENTEUM, AUCKLANDII, and so on—before a picture such as this even Mr. Waterer's tent must pale; but the Londoner may well be proud of his little Zemu Valley in Cadogan Place, and of the skill and untiring perseverance which, far from fog and smoke, have provided this feast of colour, and then transported it bodily to his very door. Entering the tent one is almost dazzled at first by some of the rich red tints, which are saved, however, from seeming flaunting or gaudy by the masses of dark foliage whereon they rest. But crimson yields to pink, and pink melts away into creamy white in everchanging cadence, and then a bold dash of purple supplies the needful shadow. Yonder, in sooth, is the burning bush of Moses; the snow, however, of its neighbour cools down the prospect; and so the visitor

feasts awhile on the general effect of this gleaming sea of rosy colour. astonished that any combination so beautiful could be devised and accomplished by the art of man ; for it is the art of man which has reared and tinted every one of these gorgeous plants in their profuse variety, which has rendered them all hardy in our vexing climate, and has finally brought them—some bending under the weight of thirty or forty winters—from afar, and now bids them bloom their best before us.

After thus enjoying the general effect, we proceed to examine particular plants, and presently we find ourselves confronted by the whole Waterer family disguised as Rhododendrons. The venerable "JOHN WATERER," whose exact pedigree* I have often sought but never found, and his venerable spouse, "MRS. JOHN," are there, glowing as usual in crimson health. Their descendants are all around : "FRED WATERER" and "MICHAEL," chips of the old block, but ruddier and stouter, as becomes their youth ; "KATE WATERER," with her hazel eye ; and "HELEN" and "BAI WATERER," the loveliest of the flock, who, with their brother "JACK" and "BERTRAM CURRIE," have fairly outdone and vanquished that notable flower, "ALARM." Beyond the family circle, "LORD EVERSLEY," "MRS. JOHN PENN," "JOHN WALTER" and others, caught my eye. I was much struck by the excellence of some of the whites, particularly on my last visit early in July. "THE QUEEN" is very good, although "MADAME CARVALHO" is my favourite.

So much from the point of view of an ordinary observer, who admires beautiful flowers, or the would-be purchaser ; but the true fancier will go a little deeper, and curiously notice the traces of affinity obvious in all these plants, dividing, however, into two or three currents of race.

There is, for instance, the old "CONCESSUM" type of flower (this variety was raised in Belgium), depending for its beauty on the white eye, and obliterating as much as possible the spotting of the corolla, as it is obliterated in some examples of the ARBOREUM species, and in the PONTICUM of the South of Spain.† In close relationship stand such flowers as "PRINCESS MARY OF CAMBRIDGE," and others ; and collaterally, "ALARM" at the head of a host of improvements, alluded to above, with much the same colouring of the corolla, but very different in foliage and habit. Another class of flower is conspicuous for the very distinct marking on some or all of the segments of the corolla, perhaps a modification of the orange eye of the Pontic PONTICUM, or the black markings of some forms of ARBOREUM, or the greenish of CAUCASICUM or MAXIMUM. A third class is of the "self" type, and depends for effect on the distinctness and beauty of one colour, without much contrast or relief except that of its own foliage. These last are naturally most effective in large masses, and at a distance. Among them the brilliant crimsons are very numerous, and have arrived at great excellence.

Distinctive characteristics of the hardy species used.

As it is with the blossom so it is with the foliage, nay, one might add with the capsule and the calyx, and the arrangement of the flowers in the truss, they all speak more or less of the five or six species from which our hybrids spring. Ever since the memorable advent of R. "ALTACLARENSE" ‡ (the first of the

* ARBOREUM and (probably) CATAWBIENSE. See p. 62. † R. BÆTICUM.
‡ (CATAWBIENSE × PONTICUM) × ARBOREUM. BOT. MAG. 3423.

ARBOREUM hybrids), you have the thick, succulent, tomentose leaf derived from the Indian stock. Somewhat flimsy, on the other hand, but copious and wind-withstanding, is the leafage derived from R. PONTICUM, which asserts its presence in some of our best whites. Paler, blunter, rounder leaves, with revolute edges, speak of CATAWBIENSE and CAUCASICUM blood, the former predominating in many of our hardiest favourites, and the latter generally imparting a very short petiole, and a dwarf and early habit.

R. MAXIMUM may manifest its influence by viscid stalks, a tight truss, leaves curiously curled together in frosty weather, and an uncomfortable habit of prematurely thrusting up its leaf-shoots among the blossoms.

Traces of CAMPANULATUM'S densely tomentose leaf (the species was selling some forty years ago at five guineas the plant), are to be found in some gardens. These and such-like discriminations may perhaps appear rather too nice and speculative in view of the complicated crossing and re-crossing, which has taken place among our modern Rhododendrons. Nevertheless no speculations are misplaced which, in the multitude of our hybrids, make us think of the species whence they come, and lend a charm to our travels wherever Rhododendrons are found wild, even on such beaten tracks as near Gibraltar, and the countries in the neighbourhood of Constantinople. In those two spots—or, to speak more correctly, at the two ends of the Mediterranean basin, and nowhere else between (a fact commented on by M. A. de Candolle as "un fait curieux et d'une très grande importance pour la géographie botanique"), R. PONTICUM appears under diverse forms and names. On searching the authorities, say from the plate of Pallas downwards, and examining herbaria and living plants, a host of interesting questions arises which one longs some day to solve on the spot. So is it with the North American R. MAXIMUM and CATAWBIENSE, after a study of Pursh and Bigelow and Asa Gray, etc.; and so is it still more with the puzzling R. CAUCASICUM, of which so many shams are in cultivation; but the greatest subject of our would-be travels and researches is not reached until we arrive at the vast range of that last but mightiest factor, the grand R. ARBOREUM. Of this, for the present, I must say no more than that, as I apprehend its prodigious range and its numberless forms, I am persuaded that its history has yet to be written. Along the west and east Himalayan slopes, through the Khasya Hills, on the Nilgherries, in Ceylon, in Assam and Burmah, this species shows its glowing fireball now to the eternal snows and now almost to the plains. But more of this, I hope, anon.

Before concluding, one last word for Mr. Waterer's plants. We owe him infinite thanks for the new phase of beauty which they have furnished for our gardens and our woods. With their aid many a barren hungry spot has this year been blossoming like the Rose, and while the species have been damaged by the winter, the hybrids have laughed Boreas to scorn. Nor let the jealous botanists complain of the mixing and confusion of the species.

Depend upon it that he who intelligently cultivates hybrids, or raises hybrids, will be often thinking, both at home and abroad, of the specific types; from species he will probably rise to genera, from genera to the whole science of Botany, and perhaps contribute some day to extend its triumphs and its truths.

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *March 4th*, 1882.

The Editor writes to me : " Is there any marked difference in the seedlings of Rhododendrons ? "

Characteristics of seedlings.

In venturing to give an answer to this question, so far as my observation and experience among Himalayan Rhododendrons permits, I will for the present confine the word " Seedlings " to plants grown from seed imported from their native places, that is to say, plants of the first generation, and my answer must be in the negative. I believe that a packet of seed, gathered from the same species and in the same locality, will yield in Europe seedlings, not of course, absolutely uniform, but certainly showing no marked difference. This result, although often questioned, was surely to be expected, seeing that Himalayan Rhododendrons are mostly social plants, and must commend itself to the experience of our old-fashioned R. PONTICUM, which, when kept apart from other species and hybrids, continues very true for many generations. Certainly, for the first generation, the seedlings of Himalayan Rhododendrons are often produced in great numbers, almost absolutely alike. Sometimes this uniformity descends to later generations, and sometimes even to hybrids.

Thus Mr. G. Shepperd has raised about 150 hybrids between R. EDGEWORTHII and R. FORMOSUM, most of which have bloomed, and he can see no difference whatever in any of them. I must not, however, at present go so far afield, but confine myself to the assertion that carefully collected native seed will, when grown in this country, faithfully reproduce the parent type.

I may seem, perhaps, to have unduly laboured this highly probable statement. Nevertheless, the Editor's question is a very important one, even in my limited sense, and is not to be disposed of quite easily. For how comes it that in European collections there prevails such a variety of type with plants of the first generation as fairly to puzzle a connoisseur ? Specialists are often justly accused of magnifying unimportant distinctions, but I hope to avoid this charge on the evidence about to be adduced. Take, for instance, R. FULGENS, which has been derived exclusively from Sikkim or close by, figured very finely in Sir J. Hooker's magnificent work from his own drawing taken on the native spot.

After awhile the seed transmitted by him to Kew produced plants and blossom, and a plate of that blossom appeared in the BOTANICAL MAGAZINE,* prepared by the very best flower artist. Now, I defy any one not to remark a most striking difference between the two portraits, and this not in colour, but in character. The BOTANICAL MAGAZINE indeed mentions one difference, and the section of the ovary suggests another ; but I have seen in living plants of the first generation quite enough to make me believe both portraits correct, and each type distinct. Again, the late Mr. Gorrie was one of the first to grow Sikkim Rhododendrons, and in 1854 he was reporting on them to Sir J. Hooker, who published his reports. In these reports he noticed that he had apparently

* Plate 5317.

several forms of R. FULGENS. Mr. Gorrie continued to grow Rhododendrons, and shortly before his death, in 1880, he read a paper to the Edinburgh Botanical Society, in which he gave so extraordinary an account of a so-called R. FULGENS that I thought it desirable to ask leave to inspect his plants. Among them I found one form of R. FULGENS, but it was not so named. I do not marvel, however, that Mr. Gorrie did not recognize it, but described it as "R.— ? an unnamed species," for it is unlike both the types alluded to above. The plant which Mr. Gorrie named R. FULGENS may possibly be yet another form of the species; but if so, it is a fourth form. His description is as follows: "R. FULGENS—a plant which is now about twenty-five years old, and only 15 inches in height by 33 inches in diameter—has never suffered from either winter or spring frosts, nor has it yet flowered, but its compact growth and the bright verdigris-green of its young leaves render it a favourite dwarf evergreen." R. FULGENS.

Once again, Mr. Luscombe has been growing Sikkim Rhododendrons from the very first, and his plants are, or were, of the first generation. He has written to me on the subject of R. FULGENS, and he tells me that his type of the species is, "not like that in Sir J. Hooker's work, but loose-flowering like R. THOMSONII." Now, considering that Sir J. Hooker's R. FULGENS has a cluster of many flowers crammed closely together, and that R. THOMSONII hangs its few flowers as loosely as may be, this is saying a great deal. Mr. Anderson-Henry considers that he has two or three varieties of the species, and not many weeks ago I discovered in Mr. Roger's most picturesque nursery, near Southampton, a form which in foliage seemed different from all that I have described. But as this last was a grafted plant, I must not rely too much on its appearance. At Kew there are several types, which with the kind assistance of the authorities I propose to study during the ensuing season.

Similar remarks might be made with regard to other species, such as R. ARGENTEUM, FALCONERI, THOMSONII, and others; but I must postpone these for the present, and devote a few words to my explanation of the facts as illustrated by the example of R. FULGENS. I may be wrong, but, if so, I have the satisfaction of knowing that a most competent observer, who is much interested in the subject, will probably this very spring be in a position to confute me on the spot. The explanation, then, is this: That as the Himalayan range passes eastward through Nepal, Sikkim, and Bhotan, the genus Rhododendron becomes truly protean in form, and presents not only an extraordinary number of species in a small space, but also striking geographical varieties in very great abundance. Even R. ARBOREUM, which, according to Dr. Thomson, is so uniform except in colour, westward begins to yield to variation in Nepal. On some future occasion I may show how this notion of extreme variety is quite in accordance with high authority, and especially with the writings of Sir J. Hooker (who mentions the case of R. FALCONERI, R. AUCKLANDII and others), and I may then point out the curious resemblances, and yet the differences, between the Rhododendrons of Sikkim and Bhotan, which have now been brought together in the FLORA OF BRITISH INDIA. For the present I will only add that the circumstances attending the collection of Rhododendron seed, and the fact that ripe seed and blossoms are seldom to be seen together, will explain how many smaller differences Geography of the Himalayan Range.

have escaped the observation of collectors who have gathered the same species from different localities, from different elevations, or perhaps from different sides of the same valleys. Such an explanation is surely more philosophical than the notion that so many variations have arisen—not gradually, but all of a sudden—from cultural influences. My readers will apprehend how interesting botanically it is to find such a variety of types packed together in so small a compass, for instance, as Sikkim; but they will, of course, remember the character of the country and its climate, where Alpine and almost tropical conditions occur side by side.

The Heaths at the Cape of Good Hope give an example of great variation in the same family, but Dr. Beccari's* remark on the Rhododendrons of Borneo offers the best, and a very curious, analogy. His words are very striking: "According to my personal observations it appears that almost every mountain top in Borneo has its own special forms, which do not seem to spread themselves, at least on the adjoining mountains."

J. H. M.

* Dr. Odoado Beccari's work "Malesia," to which Mangles so frequently refers, was published at Genoa in 1877–1890 (3 vols).

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *April 8th*, 1882.

RHODODENDRON DALHOUSIÆ.

Will you permit me to mention in your journal, as I did to the Scientific Committee, that I owed the truss of R. DALHOUSIÆ to Messrs. Downie & Laird, of Edinburgh, whose magnificent plant I saw last year in their Nursery. The greenish-yellow form, as stated by Sir J. Hooker, is the most common in cultivation, and also in its native haunts. The white form, curiously enough, is almost exactly presented by a hybrid raised by Mr. Anderson-Henry between the true species and R. FORMOSUM.

J. H. M.

The Rhododendron Society Notes.

THE GARDEN, *September 24th*, 1881.

THE GARDEN FLORA.

Plate CCCIII.—RHODODENDRON AUCKLANDII.

(Drawn in the Temperate-house at Kew, 1881).

Some years ago I wrote : " I would advise all Rhododendron lovers who do not know R. AUCKLANDII to lose no time in examining Sir Joseph Hooker's book, and, better still, to visit Kew in May, in which month R. AUCKLANDII is generally in bloom there." Those who followed this latter advice last May, surely found their reward in beholding the glorious bush, which bore the flowers figured on the accompanying plate. In the Temperate-house a fine collection of Himalayan Rhododendrons flourishes under the care of Mr. Binder, a true lover of the genus, and among them all none surpass, and few equal, the species named by Sir Joseph after Lord Auckland, once Governor-General of India, but which the BOTANICAL MAGAZINE, later on, described as a variety of R. GRIFFITHIANUM (Wight). (See tab. 5065.)

I have examined in the Kew herbarium the specimens of R. GRIFFITHIANUM (from Wight's herbarium, from that of the late East India Company, and from Griffith himself, the discoverer), and although the flowers and the foliage are ludicrously small in comparison with our plant and the AUCKLANDII specimens, yet it is impossible not to observe a close technical resemblance. The same may be said of the plate in Wight's " ICONES."

Whether this herbarium R. GRIFFITHIANUM has ever been cultivated is very doubtful. I have never seen it, and my friend, Mr. Anderson-Henry, who has plants labelled respectively R. AUCKLANDII and R. GRIFFITHIANUM, writes me that there is no difference between them. Further, it is extremely probable that all the plants which have hitherto bloomed in Europe are derived from Sir J. Hooker's original consignment of seed, for, although the species does grow within British territory, I believe with Mr. Sykes Gamble, conservator of Indian forests (to whom I am indebted for seed), that it is very rare and difficult to come by. Hence, for present horticultural purposes, we may keep out of sight Griffith's inferior Bhotan plant, and also the tree, 40 feet high, from which Mr. C. B. Clarke, the eminent Indian botanist, gathered specimens. With Sir J. Hooker this species is always a bush. He found it in two different localities at least, in Sikkim-Himalaya in one with large flowers, in the other, " conspicuous for the abundance rather than the large size of its blossoms." Sir Joseph seems to have gathered his seed where the larger type prevailed.

Nevertheless, the cultivated plants differ in certain respects among themselves, although the difference falls very far short of what is observable in their native haunts. The corollas are not quite alike in size or colour ; in some the calyx is green, in others pink ; in some there is a strong and delicious scent,

in others a scent said to be like May-blossom, and in others no scent at all (Sir Joseph describes the species as inodorous). The leafage is not uniform, and the brilliant red scales which ornament the rising leaf-shoot in some are not possessed by others. Moreover, some plants appear to have a strong tendency to abortive stamens.

Be all this, however, as it may be, there is no doubt, I think, that our plant, in its various forms, is one of the grandest ever introduced to cultivation. When it is stated that a single flower in a truss of six, seven, eight, or nine flowers is sometimes $6\frac{1}{2}$ inches in diameter, the difficulty of conveying an adequate notion of its beauty in a plate of limited size will be understood. That the leaves are sometimes nearly 1 foot long and copious does not lessen the difficulty.

But even this does not exhaust the marvel. I have it under the hand of my friend, Mr. Otto Forster (who among his other achievements was the first to bloom R. NUTTALLI in Europe), that, in his winter garden at Augsburg, a bush of R. AUCKLANDII bore in one season 122 trusses of its magnificent flowers.

Yet it is most appropriate that this and other Himalayan Rhododendrons should be described in connection with Kew Gardens under the presidency of the greatest of modern botanists. Those who have read that interesting and inimitable book entitled HIMALAYAN JOURNALS will know how in 1848 and 1849, Sir J. Hooker explored, under very great difficulties, regions before and ever since unvisited, and discovered a whole host of floral treasures, among which were our Sikkim Rhododendrons. Sikkim, indeed, proved a very nest of Rhododendrons, scarlet, purple, yellow, orange, white, scented and scentless, scaly and unscaly, in marvellous profusion, from the stately R. ARGENTEUM to the tiny R. NIVALE, from an elevation of 6,000 feet to one of 17,000 feet. Bhotan, which had been previously explored by Griffith, proved almost as prolific when ransacked by Booth. Would that both countries could be ransacked again. Meanwhile, Sir J. Hooker's magnificent plates in his RHODODENDRONS OF SIKKIM-HIMALAYA, supplemented by those in the BOTANICAL MAGAZINE, introduce to a new world of floral beauty, of which the great proportion of the horticultural public are still nearly wholly ignorant. Sir J. Hooker transmitted seed to Kew without delay, whence it was liberally distributed. The first to bloom was R. CILIATUM, then R. DALHOUSIÆ, in the wonderfully short period of three years. R. AUCKLANDII, from which I must apologize for wandering, required no less than nine years. Since 1860 descriptions of the blooming of this species have from time to time been given. From Cornwall and Yorkshire, from Scotland and Germany, and elsewhere, men have written to say how the magnificent flowers have astonished and delighted them. Undoubtedly, the greatest success was achieved by Mr. Otto Forster, as related above ; but Mr. Anderson-Henry and others frequently bloomed the plant, while Mr. Boscawen induced his specimen to produce most glorious trusses in the open air at Lamorran, in Cornwall. At Kew, for many years past, R. AUCKLANDII has been a chief ornament and attraction offered by the temperate-house.

Never, perhaps, has it been seen in greater perfection than in the plant from which this plate was taken. This plant is not a seedling, but a graft on R. ARBOREUM, put on some few years ago.

The stock does not appear to have affected the scion, for the result is essentially a bush, not above 6 feet high, and with a very floriferous habit. On blooming this year, for the first time, it bore no less than seven trusses. Its glossy green foliage was so striking that I had written about it as well worthy of a visit long before the blossoms appeared. Whether there would be any flowers at all this year seemed to me then very doubtful (the blossom and leaf-buds are provokingly alike). Mr. Binder, however, took a more hopeful view, and he was right. Early in May, I received a kind note from Professor Thiselton-Dyer, intimating that there was something worth my seeing in the temperate-house, and so indeed it proved. No description of mine or plate can do justice to the exquisite delicacy of the corolla or the grandeur of the truss. This may appear high-flown language, but much better pens than mine have indulged in unmeasured admiration.

One well-known writer says : " It is difficult to find an adjective sufficiently expressive of the majestic loveliness of the flower." Sir J. Hooker calls it " the superb species." Mr. Otto Forster says that " nothing in the whole vegetable kingdom is more beautiful," and Mr. Anderson-Henry calls it the gem of his collection. The defects, if one may venture to say so, are perhaps the looseness of the truss and the insignificance of the stamens, which appear somewhat out of proportion with style, stigma, and everything. The cultivation of Himalayan Rhododendrons, in spite of isolated successes, is still in its infancy.

Not many in these hurried times have the patience to watch the gradual growth and eventful flowering of these glorious plants, and many, having begun, have wearied of the pursuit and turned to other subjects. A good deal of misapprehension, too, has contributed to this result. At first the plants were too rashly supposed to be altogether hardy ; now they are as rashly thought to be wholly tender. The truth lies somewhere (it remains to be proved where) between ; and I am glad to see that at Kew they are making fresh experiments (observe a bed recently planted near the Fern house). Some species, undoubtedly, such as R. Nuttallii (I once lost ten plants by my rashness), R. Dalhousiæ, and Maddenii, must have glass, but with the greater number of them it is not the severity of cold which injures, as I had proved over and over again with R. Aucklandii, but the early growth and the spring frosts. One mode of meeting the danger is by lifting and checking the plants in early spring, another by planting in backward aspects, and yet another by offering some slight protection, not from the cold, but from the sun and sudden thaws.

A glasshouse without any heat is certainly the best, although a great deal may be done without glass ; and any one who has seen the plants in their glory will admit that they deserve a little, or rather a great deal of trouble. In truth, these are not subjects to be attempted by persons who have not energy and patience. The suitable aspect, soil, and treatment have still in many cases to be discovered, but there is this to charm away the difficulties : that these plants in a garden form a feature wholly unique ; when they do flower well they create quite a sensation in the neighbourhood. Even when they do not flower, the foliage presents very great variety and beauty, and the crimson scales hanging round the young leaf-shoots of one variety of R. Aucklandii are well worth a

day's journey. This allusion to variableness in one respect leads me to express a hope that by selection of seedlings, and a wholesale practice of outdoor planting, we may arrive at even an entirely hardy form.

In Sikkim our plant occupies an elevation of from 7,000 feet to 9,000 feet, which is considerably higher than the average elevation occupied by R. ARBOREUM and its near allies. If R. ARBOREUM has not been acclimatized, yet how much of its scarlet blood flows in the veins of our splendid and entirely hardy garden hybrids.

One word, then, on the present progress of hybridising. THE GARDEN figured in June, 1877, the beautiful blossoms of plants raised between R. AUCKLANDII and the hardy "JOHN WATERER," by Mr. Scott, at Lawson's, Edinburgh. One of this breed bloomed with me this year (some time ago they were parted with as of no value), and was, very justly, much admired. I have seen many of the same strain, the individuals of which differed in the size, colour, and perfume of the flowers. Mr. Luscombe has another strain, for he wrote to THE GARDEN in 1879: "Hybrid Rhododendrons are quite safe, especially some very fine white varieties from the Sikkim AUCKLANDII."

Messrs. Standish have a third, and I possess a fourth, on all of which I have written elsewhere.

There are said to be also hybrids between this species and R. THOMSONII and R. ARBOREUM pure. These hybrids, so far as they have proved themselves, and I know, are fertile, so that by cross breeding among them, an entirely new race, as various possibly as in the case of hybrids from R. ARBOREUM, may presently be produced.

Let it be remembered that the plants which we now so largely cultivate of this latter strain are not plants of the first cross. I grow from sentiment, perhaps, and as a curiosity, R. "ALTACLARENSE," the first hybrid raised from R. ARBOREUM, but how miserably tender it is! The second quarter of the century was spent in improving upon the first essay, and we now enjoy the results.

Similar efforts must be made with the offspring of R. AUCKLANDII, from which I have very strong hopes of seeing a race as celebrated and as popular as in the case of R. ARBOREUM.

J. H. M.

The Rhododendron Society Notes.

THE GARDEN, *November 26th*, 1881.

Hardiness of Himalayan Rhododendrons.

I have received several communications relating to the article on R. AUCKLANDII, published in THE GARDEN some weeks ago.

Among others the Rev. H. Ewbank kindly invited me to inspect the Rhododendrons growing in the garden of Sir W. Hutt, near Ryde, Isle of Wight. A few lines on what I saw there may be interesting to your readers. On the grass in front of the conservatory, and somewhat screened by it, stood, separately, three plants, each of a different Rhododendron species. R. FALCONERI was 5 feet or 6 feet high, and I think had not flowered. There was nothing strange in finding this species perfectly hardy and healthy in the open ground, for during last summer I had seen, even in the Highlands, a much larger and finer specimen, and in various places it thrives and blossoms annually. The second plant was a bush of R. THOMSONII which had never bloomed, although of large size. Here again there was no marvel, for this often shy bloomer is quite hardy and often opens its wax-like crimson bells unharmed by spring frosts.

The third plant was one of R. NUTTALLII, cut to the ground last winter, but shooting strongly again. This did indeed astonish me, for I look upon the species, as a rule, as wholly tender, and once I lost hopelessly ten fine plants by turning them out of doors in sheltered positions.

In a windy spot among trees, a 6-feet or 7-feet specimen of R. AUCKLANDII was battling with the breeze. This had bloomed grandly where it stood in May last. From description it would appear to be one of the best types of the species, matching perhaps Mr. Boscawen's plant in hardiness and loveliness.

My friends in Scotland cannot credit the comparative hardiness of R. AUCKLANDII, in spite of all I have seen and written, but I was not at all astonished to find it thriving well in the Isle of Wight. Lower down the slope, which faced north and overlooked the sea, two beds of Himalayan Rhododendrons had been planted. The spots were partially sheltered by pines and shrubs. In the centre of one bed stood a fine standard of some type of R. ARBOREUM, said to be brilliantly scarlet, and certainly presenting the foliage features of the best and tenderest form. Round it were bushes of R. CALOPHYLLUM, MADDENII, EDGEWORTHII, FORMOSUM, CILIATUM, and such hybrids as "SESTERIANUM," "PRINCESS ALICE," "MACNABIANUM," etc. I was told that these plants had occupied the bed for some years without any protection.

The condition of some of them, considering the character of last winter, was truly wonderful to me. R. ARBOREUM was covered with bloom buds, and the foliage fine and healthy. R. CALOPHYLLUM was also covered with bloom buds, and upon it and upon R. MADDENII were half-ripened capsules from the bloom of last summer.

These two last are not to be considered as one species, but in point of hardiness at least there is a great difference. With me the former survives,

though with injury, most winters, and Mr. Chas. Smith, Jun., sent me last summer from Guernsey fine blossoms from the open ground, but R. MADDENII, with me at least, invariably and speedily succumbs. In Sir W. Hutt's garden, however, both had braved the fearful weather of last season, I will not say with equal impunity, for R. MADDENII had clearly lost some of its shoots, but both had bloomed, and had perfumed the garden, I was told, with the scent of their large white blossoms.

The second bed suggests no further remark than that it contained, among others, a plant of R. TRIFLORUM, which is an interesting and rare, but hardy species.

Next spring I hope to see all the plants again and to confirm my present report.

I must not close without noticing the striking paper of "H.H.," which appeared in THE GARDEN, of October 15th last.* It would give me much pleasure some day to visit his very excellent collection of Rhododendrons, if agreeable to him. Some of his experiences a little puzzle me; for instance, the severe injury sustained by R. THOMSONII.

Two large plants of that species (now in my possession), one of which is 8-feet high, suffered not at all last winter in Edinburgh, and smaller plants with me were wholly uninjured. Is it perhaps R. HOOKERI, which sometimes changes names with the other, and is far more tender?

J. H. M.

* See page 112.

The Rhododendron Society Notes.

THE GARDEN, *April 8th*, 1882.

Varieties of R. ARGENTEUM.

I am collecting various types of this Rhododendron and attempting to classify them. It is very curious how many types are to be found in this country, and it will be interesting to ascertain, if possible, whence they are derived. At Kew there are no fewer than three types, to say nothing of R. LONGIFOLIUM. a close ally, of which I have never seen the flower.

From Messrs. Downie & Laird, of Edinburgh, from Glasnevin, from France, and elsewhere, I have received many types, and several that seem intermediate between R. ARGENTEUM and R. FALCONERI. These last may be natural hybrids, for Sir J. Hooker relates how "on Tonglo, as it approaches 10,000 feet, R. ARGENTEUM is suddenly replaced by R. FALCONERI," so that in certain localities the species grow side by side. I must say, however, that Mr. Sykes Gamble, conservator of forests at Darjeeling, writes to me: "I should say R. ARGENTEUM is pretty constant." The variations I have found are in the leaf, in the stigma, in the number of the stamens, in the lobes of the corolla, and cells of the ovary, as well as in the size, colour, and markings of the corolla. Herbarium specimens differ very much in some of these particulars, and the plates that have been published also.

The FLORA OF BRITISH INDIA abolishes the name R. ARGENTEUM as a specific name, replacing it by that of R. GRANDE, which was discovered by Griffith in Bhotan many years ago, so that to that country we must look for the normal type. Griffith's herbarium specimens are very small, but Wight, who named the species, says: "He (Griffith) briefly characterizes this species in a single word, 'magnifique,' which idea I have attempted to convey in the specific name."

J. H. M.

The Rhododendron Society Notes.

THE GARDEN, *March 15th*, 1884.

Rhododendrons in Ireland.

In August, 1882, I paid a visit to Ireland, hoping to find some of the rarer Sikkim and Bhotan Rhododendrons surviving in the open air. The mild, damp, congenial climate seemed to promise better things than had generally happened in most parts of England and the Continent to these plants ; and as I had found very interesting survivals in parts of Brittany, in Cornwall, in Wales, and in the Isle of Wight, I hoped for even brighter luck in Ireland. Some of the very grandest of the Rhododendrons are nearly hardy with us ; but what a world there is in the word nearly, even in the mildest of winters ! For instance, last year an 8-foot high R. ARGENTEUM bore the winter well till the fatal bitter month of March caught it in bloom and froze the flowers through and through, and stunted some of the leaf-buds, destroying absolutely, however, only those leaf-buds which were in immediate contact with the bloom-buds, and which would seem to have been sympathetically affected, and so fell victims to the cold, for in the true R. ARGENTEUM the bloom-buds always open long before the leaf-buds. On the other hand, a plant of R. GRANDE under a north wall did well, and set two splendid blossom-buds, although only 4 feet high ; while a much larger plant of the same species produced blossoms fit to show at South Kensington. Last winter, however, was exceptionally mild, as we all know, and in rougher years bloom-buds and leaf-buds alike may be destroyed. It does not follow that the plants are thereby killed ; but more generally there takes place what Mr. Noble (whose " old experience " in this branch of horticulture is notorious) well described to me as " dwindling away." Each year, or nearly so, with some species, the main shoot of each branch is cut back by cold. Later on side shoots replace it, but the vigour of the plant is injured ; its habit gets stunted and unnatural ; flower-buds never or rarely form ; and by-and-by the poor cripple perishes, or is put out of its misery. To see such specimens in a garden is a mournful sight, although it is scarcely less so to see their pot-bound starved brethren sweltering in some blazing conservatory. Truly, these Rhododendrons must have iron constitutions to endure the terrible treatment they often meet with both out-of-doors and in, and yet sometimes to survive. More than thirty years ago seeds and plants of the Sikkim species were distributed from Kew, and somewhat later on the Bhotan species, through Mr. Nuttall, over a great part of Europe. Many of the plants were grown awhile under glass or some protection, and then turned out to make room for more fashionable novelties. For several years I have been searching many parts of Europe to see the survivors of these plants. Here and there the original plants have been found in various conditions of preservation ; but for the most part, they appear to have " dwindled away " by the process above described, or to have been choked out of existence by the common hardy Rhododendrons among which they had been planted.

Glasnevin.

Many a fruitless journey have I made to the sites of well-recorded former collections. In Ireland, however, I hoped for something better, and in the Glasnevin Gardens, to begin with, I was not disappointed.

So much has recently been written about these beautiful gardens, that I need not now dwell on the feelings of admiration with which I always view them. On my first visit, Mr. Moore (who may well be proud of the monuments of his own and his father's labours), was lecturing in one of the plant houses, where I had the pleasure and profit of hearing his remarks. When these were concluded he accompanied me, and I owe him many thanks for the interest and zeal with which he helped me to hunt the shrubberies, and to find, examine, and name several relics of "thirty years ago" still lingering in sheltered nooks and hollows, or protected, but not swallowed up, by other shrubs.

R. HOOKERI, to my surprise, seemed fairly flourishing. I do not remember whether it had bloomed out of doors; there certainly were no bloom-buds.

Although I have received vague tidings of its survival elsewhere, I have nowhere else except in Glasnevin Gardens seen this rare species growing in the open air; but why I scarcely know, for it is said to grow in its native land in company with R. EXIMIUM, which is far from being very tender. R. HOOKERI is not a native of Sikkim, but of Bhotan, and it offers an excellent illustration of how the latter country furnishes so many equivalents (like, and yet unlike) of the Rhododendrons of the former.

In Sikkim, the species is R. THOMSONII, so well known and comparatively hardy, with its almost round leaves and waxen bells of blood-red flowers. In Bhotan, the equivalent is R. HOOKERI, with florets very similar in colour and shape, but much more numerous, and holding themselves differently. The calyx, moreover, is distinct, and the leaves very peculiarly so. These last are oblong, and show underneath on the nerves most curious tufts. In this respect R. HOOKERI stands quite alone, so far as I know no other Rhododendron showing this peculiarity, which is not transmitted to hybrids, of which I have raised a numerous progeny. It breeds freely with that most difficult of breeders, R. FULGENS, both ways, with many forms of R. ARBOREUM, R. BARBATUM, R. CAMPYLOCARPUM, and R. PONTICUM and the ordinary hardy hybrids, also with R. ARGENTEUM, but not with R. FALCONERI or with R. GRANDE, and this last fact confirms me in the persuasion that R. ARGENTEUM and R. GRANDE must be kept apart. My other reasons need not be mentioned here. With the scaly-leafed Rhododendrons I have only succeeded as yet in breeding with R. DAURICUM.

I have called R. HOOKERI rare. At Kew there was a fine plant in the temperate-house, which died a few years ago. On my mentioning this to my most liberal friend, Mr. Anderson-Henry, he replaced the loss. To him I also owe my two finest plants, which, after what I saw at Glasnevin, I shall with comfort consign to my canvas house (about which more hereafter).

My friend, Mr. Luscombe, must have grown and bred from it, to judge by certain plants which he kindly sent me many years back. In various places I have met with it, but it is certainly rare. The flowers must not be judged of by the very poor plate in the BOTANICAL MAGAZINE. (Plate 4926).

When well and generously grown, the truss is large and handsome, as well as most brilliant in colour. Mr. Booth found it in Bhotan growing with R. EXIMIUM, which is to the Sikkim R. FALCONERI what R. HOOKERI is to the Sikkim R. THOMSONII; but R. EXIMIUM has strange vagaries of its own, which are rather puzzling, such, for instance, as deferring its spring shoots often until August, when they grow with an orange tomentum, like tawny sunflowers. R. HOOKERI, on the other hand, is early in its growth.

My next notable "find" at Glasnevin was a real veteran of R. LANATUM; but I have trespassed on your space for the present quite long enough.

J. H. M.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *April 9th*, 1881.

HYBRID RHODODENDRON. [Some time since Mr. Shepperd sent us flowers of a beautiful and fragrant hybrid Rhododendron, raised between R. GIBSONII and R. EDGEWORTHII. Anxious to get the opinion of a specialist famed for his knowledge and interest in these plants, we submitted them to Mr. Mangles, who obliges us with the following note concerning them.—EDS.] "The hybrid is, as described, a cross between GIBSONII and EDGEWORTHII.* The first of this cross was raised by Rinz & Co., of Frankfurt, and many years ago described in GARTENFLORA, XIII., p. 86, but I believe described wrongly, under the name R. 'SESTERIANUM.' The mistake in the description is making R. EDGEWORTHII the female parent. The cross was, I believe, the other way. Since then many similar hybrids have been raised and sent out under various names, although almost precisely the same thing. I have now about a hundred seedlings of the same cross three or four inches high, but I doubt if I shall improve upon R. 'SESTERIANUM.'"

* See note on page 49.

The Rhododendron Society Notes.

THE GARDEN, *July 23rd*, 1881.

RHODODENDRON RETUSUM.

This is the name given by Mr. Mangles, Valewood, Haslemere, to the pretty small flowered shrub received last week from Mr. Luscombe. Mr. Mangles adds a few interesting particulars respecting it: "Mr. Henshall, at one time Messrs. Rollisson's collector, found it in Java. That firm hybridised it with R. JAVANICUM and raised R. 'PRINCE OF WALES' (see FLORAL MAGAZINE, plate 155). Mr. Davies, of Ormskirk, exhibited this year what seems to be the same cross under the name of R. 'DAVIESI' (see GARDEN, May 7th, 1881, p. 464). This species is not very numerous in English gardens."

The Rhododendron Society Notes.

THE GARDEN, *October* 15*th*, 1881.

On the hardiness of Himalayan Rhododendrons.

The paper (by Mr. Mangles), published in THE GARDEN, 24th September last, is very interesting ; and as I have taken much pleasure in cultivating and hybridising Rhododendrons for about twenty-five years, especially with a view to acclimatize those of Sikkim and Bhotan, I think the results at which I have arrived may be acceptable to some of your readers. In order to avoid occupying too much space, I shall first give the names, as furnished to me, of those varieties which I have found perfectly hardy trees without the slightest protection, although some of those which bloom early (about March), have their flowers occasionally spoiled by the spring frosts :—

ALPINUM
ÆRUGINOSUM
ANTHOPOGON
ARBOREUM ALBUM
ROSEUM, very beautiful
NEPALENSE
BARBATUM, magnificent
CALYCULATUM
CAMELLIÆFLORUM
CAMPANULATUM
CAMPBELLIÆ
CAMPYLOCARPUM
CILIATUM
CINNAMOMEUM
CINNABARINUM
CRISPIFLORUM, not bloomed
EXIMIUM, fine, like FALCONERI
FALCONERI, grand
FULGENS
FALCONERI SUPERBUM, not bloomed
GLAUCUM
HODGSONII, grand, has not yet bloomed
HOOKERI
KEYSEI
LANATUM
LANCIFOLIUM, not bloomed
METTERNICHII
MASSANGEI, beautiful bloom this year
NIVEUM
NOBILE, a grand plant, never bloomed
OCHRACEUM
ROYLEI
VIRGATUM.
WALLICHII, I think same as NIVEUM.
WIGHTII, I think not true

The following were more or less injured last spring. Those marked * I have not yet succeeded in acclimatizing.

ARGENTEUM, much injured, growing well, not bloomed yet.
AUCKLANDII, much injured, growing well, bloomed well, 1878, 1879, 1880.
CALOPHYLLUM, apparently killed, but growing well.
*DALHOUSIÆ, do not give this up.
*EDGEWORTHII, I do not give this up.
FORMOSUM (GIBSONII), much injured, but growing well.
JENKINSII, much injured, doing well. never injured in 20 years previous,
KENDRICKII, I doubt its name.
LONGIFOLIUM, much injured, growing well, has not bloomed.
" LINDLEYANUM," much injured, growing well.
MADDENII, much injured, growing well (I see no essential difference between this and JENKINSII ; centre of JENKINSII flower rose, of MADDENII, yellow).
NILAGHIRICUM, not bloomed, much injured.

*NUTTALLII, many plants killed, I fear hopeless.
THOMSONII, much injured, but growing.
WINDSORII, very much injured, but growing well.
WINDSORII LEUCANTHUM, very much injured, but growing well.
The last two plants appear to me less hardy varieties of R. ARBOREUM.

I have not included any European hybrids in my list, of which, between Himalayan sorts alone, I know many, and have a great number of my own rearing also, and the reason I do not give up DALHOUSIÆ and EDGEWORTHII is that I have seedlings from crosses of them which promise well to be hardy. One especially, between EDGEWORTHII and, I think, CALOPHYLLUM, which only lost its bloom-buds last spring, I am very proud of; its fragrance is far beyond any I know, Rollisson's "FRAGRANTISSIMUM" and "LINDLEYANUM" being, so far, the best. I have named it the "EMPRESS OF INDIA," in honour of our Queen.

GLENVILLE, FERMOY. H. H.†

† Dr. Henry Hudson, whose grand-nephew, Sir Edward Hudson-Kinahan, Bart., is the present owner of Glenville Manor, where the collection remains undisturbed.—C.C.E.

The Rhododendron Society Notes.

GARDENERS' CHRONICLE, *April 29th*, 1882.

RHODODENDRONS. Numerous cut specimens were shown and commented on by Mr. Mangles. From the Royal Gardens, Kew, came a truss of R. AUCKLANDII (or GRIFFITHIANUM var. AUCKLANDII), for comparison with a hybrid variety to be mentioned hereafter; flowers of R. MADDENII, a very fragrant form, which has the merit of blooming when in a small state; and a magnificent truss of R. "BROUGHTONII." Mr. Mangles showed a hybrid of his own raising named "ALICE MANGLES," a very beautiful form, with bold oblanceolate leaves, and a magnificent, but rather loose conicle truss of large lilac nodding bells about four inches in diameter, six-lobed, and each supported on a long spreading stalk. It was raised from the pollen of R. AUCKLANDII on the stigma of R. PONTICUM. The calyx, which in AUCKLANDII is broadly and irregularly cup-shaped, with shallow lobes of which two are much larger than the others, was here six-lobed, and the twelve stamens of unequal lengths. R. "EDINENSE" raised by Mr. Anderson-Henry from R. "HENRYANUM," crossed with the pollen of R. NUTTALLII; R. "HENRYANUM" itself being a hybrid between R. DALHOUSIÆ and R. FORMOSUM.

An unnamed hybrid of great interest and no little beauty was also shown by Mr. Mangles, who raised it between AZALEA MOLLIS as the male parent and R. PONTICUM.* It has something of the foliage of R. MOLLIS, but evergreen; the flowers are borne in a terminal raceme with long ascending stalks; the corollas, which measure 2½ inches across and which otherwise are like those of R. PONTICUM, are slightly hairy, as in AZALEA MOLLIS. The stamens are ten, filaments declinate of unequal length.

R. DALHOUSIÆ, with greenish-yellow flowers of the fashionable tint facetiously described as "Greenery-yallery, Grosvenor Gallery"; the species as growing wild in Sikkim, and as figured in Sir Joseph Hooker's RHODODENDRONS OF SIKKIM-HIMALAYA, being white.

A hybrid between R. CAMPYLOCARPUM, male, and R. "JOHN WATERER," with the form of flower of the former, with something of the colour and markings of the latter.

R. GLAUCUM, with small rosy-pink flowers in a dense truss, and with a strong aromatic perfume.

A hybrid between R. "HENRYANUM" (above described), and the pollen of R. EDGEWORTHII.

R. THOMSONII, with the blood-red tubular flowers supported by a large entire cup-shaped calyx.

* In the margin opposite this passage is written "? R. LITTLEWORTH GLORY," see GARDENING ILLUSTRATED, December 6th, 1913, and GARDENERS' MAGAZINE, June 3rd, 1911.

The Rhododendron Society Notes.

From Captain Rogers, of River Hill, came R. FALCONERI, with purplish flowers, a six-lobed corolla and twelve stamens. From Mr. Luscombe (gardener, Mr. Dawe), came trusses of R. FORTUNEI, supposed to be crossed with R. THOMSONII, but the parentage, so far as the latter species is concerned, was not obvious.

Mr. Mangles also showed flowers of a hybrid raised in Mr. Parker's nursery at Tooting, between "COUNTESS OF HADDINGTON" and R. EDGEWORTHII. The flowers are large, tubular, white, with a dash of lemon at the base, and sweet-scented.

R. CHAMÆCISTUS, a dwarf Alpine lime-loving species, with charming pink flowers.

The Rhododendron Society Notes.

THE GARDEN, *April 29th*, 1882.

ROYAL HORTICULTURAL SOCIETY, *April 25th.*

The following new plants were awarded first-class certificates by the Floral Committee :—

RHODODENDRON "ALICE MANGLES." A splendid hybrid, raised by Mr. Mangles, Valewood, Haslemere, between R. AUCKLANDII and the common R. PONTICUM. The progeny is intermediate between the parents, and distinct from both. The flowers produced in a huge loose truss, nine inches high and as much across, are between four inches and five inches across, shallowly bell-shaped, of a most delicate rose-pink, flushed with a deeper hue. The foliage is large and very vigorous, indicating a fine constitution. This variety is certainly one of the most beautiful of all Rhododendrons, and probably hardy. Shown by the raiser.

RHODODENDRONS. Mr. Mangles exhibited a collection of species and hybrids, of which the following were particularly worthy of note: Hybrid between R. GRIFFITHIANUM and R. PONTICUM, partaking much of the character of the former species in flower and foliage, with ten very large pale pink flowers arranged in a pyramid, the stamens varying in number. The leaves are very large, of a rich dark green. This hybrid blossomed for the first time, and is eight years old, and is hardier and dwarfer than R. GRIFFITHIANUM. It is the first of a large series of plants raised from similar crosses. Hybrid between AZALEA MOLLIS (male) and R. PONTICUM (female), having the hairy corolla of the former, but with evergreen leaves—the converse cross will not succeed. Hybrid, raised by Mr. Parker, the offspring of the hybrid "COUNTESS OF HADDINGTON," crossed by R. EDGEWORTHII. It has large, white, scented flowers, tubular, with a dash of lemon at the base of the corolla. Of species, he exhibited R. GLAUCUM, dwarf, and densely covered with pink, bell-shaped flowers, and highly aromatic. R. THOMSONII and R. CHAMÆCISTUS, an Alpine species received from Mr. Otto Forster, from the Austrian Alps. It is a lime loving plant, with pink flowers. Mr. Mangles also showed interesting hybrids from Mr. Luscombe's gardener (Mr. Dawe); also R. FALCONERI (?) from Captain Rogers, of River Hill.

Vol. I., No. III., 1917.

The Rhododendron Society Notes.

IPSWICH: W. S. COWELL, LTD.

The Rhododendron Society Notes.

NOTES

CONTRIBUTED BY

MEMBERS OF THE SOCIETY

FOR THE YEAR

1917

All communications regarding the publications of the Rhododendron Society should be made to Charles Eley, East Bergholt, Suffolk.

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AMERICAN AZALEAS AND THEIR HYBRIDS.

A Letter from Professor Charles S. Sargent.

Dear Mr. Williams,

Your letter of September 18th has remained too long unanswered, but I shall now try to answer some of the questions about the American Azaleas which are embodied in that letter.

1. Descriptive characters. The best technical description of the well-known species is found in the new edition of Bailey's Cyclopedia of American Horticulture. This description was prepared here at the Arboretum by Mr. Alfred Rehder from material in this collection.

2. Habitat. Rhododendron viscosum, R. canadense and probably R. oblongifolium inhabit swamps. The other species so far as I know grow naturally in upland valleys, on mountain slopes or in open oak woods. None of the species are found growing in soil impregnated with lime.

3. Date of introduction and discovery. The old species were no doubt cultivated in Europe long before they were cultivated in the United States, and the dates of their introduction into European gardens and discovery can be found in the records of European horticulture, as for example in Aiton's Hortus Kewensis.

Rhododendron Vaseyi was discovered by George R. Vasey in 1878, near Webster, Jackson County, North Carolina, and was introduced into the Arnold Arboretum in 1880. I have no record that it was cultivated earlier. About that time we sent seeds to Anthony Waterer of the Knaphill Nurseries.

Rhododendron occidentale. According to the Botanical Magazine (t. 5005), this species was introduced into England before 1857. It was in the Arboretum in 1865, and it was about that time, or a little earlier, that I sent seeds to Anthony Waterer, who raised from these seeds the plants used by him in the production of his race of hybrids of this species.

Azalea austrina, *Small.* This species was first raised in the Arboretum from seeds collected in November, 1913, for the Arboretum by T. G. Harbison. This is undoubtedly the date which must be taken as the introduction of this species into cultivation. Plants were sent to Kew in November, 1916. It may be described as a yellow-flowered Rhododendron nudiflorum. It is common in open oak woods in the vicinity of River Junction, at the head of the Appalachicola River, in Western Florida. It is an extremely beautiful plant. There is little hope that it will be hardy either here or in Great Britain. Plants have been sent to you this autumn.

Azalea candida, *Small.* (Bull. Torrey Bot. Club, XVIII., 361). The type locality for this species is in the neighbourhood of Valdosta, in Laundes County, Georgia, where it was first collected by Small, in June, 1895. Valdosta is in the extreme southern part of Georgia, and this distinct species will probably

not prove hardy in Great Britain or here.* It was first raised in cultivation here from seed sent in the autumn of 1910 by T. G. Harbison. Plants were sent to Kew in November, 1916 and to you this autumn.

RHODODENDRON CALENDULACEUM. Michaux, in the FLOR. BOR. AM. (i. 151), described a variety of his AZALEA CALENDULACEA as var. FLAMMEA. This is certainly a distinct species (not yet described) which is common in dry oak woods near Augusta and Milledgeville, Georgia. Michaux no doubt found it near Augusta, as he passed by that place several times on his journeys from Charleston to the high Appalachian Mountains. It is a low-country plant, while R. CALENDULACEUM is found only on mountain slopes.

It is probable that Michaux sent seeds of R. FLAMMEUM to Europe, and I suspect that the bright red colour found in some of the hybrid Azaleas raised in Belgium was due to the influence of that species. I have no knowledge that flowering plants exist in Europe at this time. It was first raised here from seeds collected by myself near Augusta, in 1914. The flowers of this Azalea are more brilliantly colored than those of any other species, and there is a chance that it may prove hardy in some parts of Great Britain. Plants were sent to Kew, Gomer Waterer, J. C. Williams and F. R. S. Balfour in 1916, and to you this autumn.

AZALEA PRUNIFOLIA, *Small*, was first collected in flower in July, 1903, by Roland M. Harper, two miles northwest of Cuthbert, Randolph County, Georgia. Cuthbert is in a warm region, but notice how late this plant flowers. Seeds collected at the type station by T. G. Harbison have been sent to you.

AZALEA OBLONGIFOLIA, *Small*. This is a common plant in southern Arkansas and eastern Texas. Small, in his FLORA gives Tom Green County, Texas, as the type station. This is evidently a mistake, as Tom Green County is in the semi-desert part of Texas where Azaleas cannot possibly grow. The type station is no doubt in sandy bogs, Grapeland, Houston County, Texas. This plant has usually been referred in herbaria to R. VISCOSUM. It is probably a distinct species. Seeds collected for the Arboretum by A. G. Palmer have been sent to you this autumn.

AZALEA SERRULATA, *Small*, is based on a specimen (No. 967), collected by George B. Nash, in June, 1894, in the vicinity of Eustis, Lake County, Florida, and distributed by him as AZALEA VISCOSA. I have seen only a photograph of the type specimen, but judging by the locality, it would not be surprising if this turns out to be a good species. I hope to get flowers and fruits next year.

4. I have no information of any hybrid American Azaleas having been raised by American nurserymen, but in 1915 seeds were sown here of what is supposed to be a hybrid between R. CALENDULACEUM and R. OCCIDENTALE crossed in the Arboretum. For literature of the hybrids raised in Europe see the BRADLEY BIBLIOGRAPHY, III., 661.

5. Cultivation, etc. Judging by our experience here, all the species which we have tried flourish in ordinary soil on well-drained slopes. Swampy

* It has survived the past winter quite well at Kew, and one of the plants carries flower buds.—W. J. BEAN.

conditions are not needed for the successful cultivation of R. CANADENSE and R. VISCOSUM, although they grow naturally only in swamps.

At Marshall, in eastern Texas, there is an Azalea, of which we have seen only a fruiting specimen, which seems distinct. This and SEMIALATA are the only American species of which there is any knowledge which have not yet been introduced.

I hope these notes will be of some service to you, and if I can help you further do not fail to call on me.

Faithfully yours,

C. S. SARGENT.

ARNOLD ARBORETUM,
21*st December*, 1917.

Since this letter was written I have received Mr. W. W. Ashe's description in Vol. XIII., page 26, of the BULLETIN OF THE CHARLESTON MUSEUM (April, 1917) of his

"AZALEA ATLANTICA sp. nov.—A stoloniferous shrub. The fragant flowers, in compact cluster of 4–10, are rose-purple, or reddish, 2·5–3 cm. long, the lobes short, pointed, and scarcely one-half the length of the slender glandular-pubescent tube; stamens 5, exserted, slightly longer than the lobes, style 4·5–5 cm. long. Twigs when young sparingly pubescent with short spreading hairs, becoming gray and glabrous the second season. Leaves 4–6 cm. long. obovate, mucronate and abruptly acute at the apex, cuneate at the base, pale beneath, pubescent on the midrib and ciliate in the margins. Pine barren swamps, north-eastern South Carolina. Type from near Georgetown, S.C., collected by W. W. A. in May and June, 1916. In many respects this plant suggests A. VISCOSA L., A. ARBORESCENS, Pursh, or A. PRUNIFOLIA, Small. Although it occurs in a region traveled by the elder Michaux, he does not seem to have noticed it, nor does it seem to be any of the forms proposed by Don or Pursh."

We have also received at the Arboretum sterile branches of an Azalea with broadly obovate to elliptic leaves and very slender bright red branchlets which cannot be referred to any of the described species. This Azalea is described as "a straggling shrub in upland woods." It was collected by T. G. Harbison at Biloxi, Mississippi, near the shores of Mississippi Sound, on October 30, 1917.

C. S. S.

19*th February*, 1918.

It is necessary to state that at present Mr. P. D. Williams is now going through a number of old catalogues and articles on American Azaleas and their hybrids, and hopes to contribute any extracts he may consider of importance to the Rhododendron Society Notes for 1919.

We are indebted to Mr. W. J. Bean for reading through the following article.

J. G. MILLAIS.
P. D. WILLIAMS.

The Rhododendron Society Notes.

AMERICAN AZALEAS AND THEIR HYBRIDS.

Contributed by Lieut.-Commander J. G. Millais and P. D. Williams.

In giving this brief history of the American Azaleas and their subsequent introduction into Europe, with the hybrids that have resulted *inter se* and with the additional hybridisation with Asiatic Rhododendrons (Azaleas), we are confronted with immense difficulties in unravelling the tangled skein of work performed by English, Dutch, French and Belgian nurserymen. If any records were kept by the Belgian nurserymen who were the most active participators in this trade, they have never been published, whilst those who may still survive are probably too old to remember accurately the basis on which the early workers pursued their trade. Moreover, during the turmoil of war it was manifestly impossible for us to proceed to the fountain head of information and pursue our investigations of the subject. It is probable too that the Belgians who followed Mortier worked somewhat blindly, just using any species or hybrid that seemed likely to give good results, and that their example was followed by both the Dutch and the French. Of the English worker we shall speak later.

The following species of Rhododendron (Azalea) were known, described and introduced into Europe in the last century or late in the previous century.

1. R. calendulaceum, *Torr.*, 1803.

[R. luteum, *Schneider*, 1911; A. calendulacea, *Michaux*, 1803; A. lutea, *Linn.*, 1753].

A shrub of 15 to 18 feet tall with erect and spreading branches and finely loose-pubescent twigs; leaves oval, elliptic or obovate; flower clusters expanding with the leaves; corolla yellow to red.

The distribution of this fine species is Southern New York, Pennsylvania, Carolina to Northern Georgia.

The " Orange " or " Flame-coloured " Azalea was first discovered by William Bartram, who sent a specimen to Sir Joseph Banks about the year 1774. It was common in English nurseries such as those of Fraser and Loddiges & Sons early in the last century.

2. R. nudiflorum, *Torr.*, 1824.

[A. periclymoides, *Michaux*, 1803; A. bicolor, *Pursh*, 1814; R. bicolor, *Don*, 1834; A. nudiflora, *Linn.*, 1762].

A shrub 9 to 12 feet tall with irregularly branched stems and minutely pubescent and more or less strigose twigs; leaves oblong to obovate or oblong-obovate, short petioled. Flower clusters expanding before or with the leaves. Corolla pink, white, or purplish.

The distribution of this species is wide as it is found from Maine to Texas, west to Illinois and south as far as Florida. Introduced to England in 1734 by Peter Collinson.

3. R. CANESCENS, *G. Don*, 1834.

[A. CANESCENS, *Michaux*, 1803].

A shrub from 9 to 12 feet tall or less, with diffuse or spreading branches, minutely soft-pubescent and strigose twigs ; leaves elliptic, elliptic-lanceolate, oblanceolate or narrowly obovate ; short petioled ; flower clusters expanding before or with early leaves ; corolla pink, rose and sometimes white. A native of Carolina, Louisiana and Florida.

The " mountain " Azalea as it is called in North America was introduced (according to Loudon), in 1810. It is often confused with R. NUDIFLORUM and R. CALENDULACEUM. The flowers of R. CANESCENS are very fragrant.

4. R. VISCOSUM, *Torr.*, 1824.

[A. VISCOSA, *Linn.*, 1753 ; A. NITIDA, *Pursh*, 1814 ; A. HISPIDA, *Pursh*.

A deciduous shrub, bushy in habit, 6 to 8 feet tall, with twiggy branches ; pubescent when young. Leaves cuneate or obovate ; short petioled ; flower-clusters expanding after the leaves ; corolla white or pink ; covered with viscid hairs.

The " SWAMP HONEYSUCKLE " is a fine late blooming species with sweetly fragrant flowers. Introduced to England in 1734. A native of Maine to Ohio, Florida and the Mississippi valley.

R. VISCOSUM var. GLAUCUM (AZALEA GLAUCA), a handsome variety with bluish-white leaves and pure white fragrant flowers.

5. R. ARBORESCENS, *Torr.*, 1824.

[A. ARBORESCENS, *Pursh*, 1814 ; A. FRAGRANS, *Raf.*, 1820].

A deciduous shrub up to 20 feet high ; young shoots smooth ; leaves obovate or oval, pointed at both ends ; flowers have a very distinct fragrance ; corolla with spreading lobes, white tinged with pink ; stamens and filaments very bright red and much protruded. The leaves, when dried, smell like newly-mown hay. A native of Pennsylvania to Georgia, Kentucky and Alabama, discovered by John Bartram, and introduced to England in 1818.

6. R. OCCIDENTALE, *Gray*, 1876.

[A. OCCIDENTALIS, *Torr.*, 1857 ; A. CALIFORNICA].

A deciduous rounded shrub up to 10 feet high ; young shoots slightly pubescent ; leaves oval or obovate ; flowers fragrant, white with yellow blotch on upper side ; stamens and style protruded. Distributed throughout the mountains in South Oregon and California, and introduced to England by W. Lobb, for Messrs. Veitch, about the year 1851.

7. R. RHODORA, *Gmelin.*

[RHODORA CONGESTA, *Moench*, 1794; R. PULCHELLUM, *Salisb.*, 1796; RHODORA CANADENSIS, *Linn.*, 1762].

A much branched deciduous twiggy bush, 4 to 5 feet high; leaves oblong, elliptic or oval; flowers about six in a cluster, produced at end of twigs before the leaves, rosy-purple.

This pretty and very hardy species is distributed from Newfoundland through Eastern Canada, south to New Jersey and Pennsylvania. Introduced 1767. In its native home it is found mostly on the edges of swamps, but does not flourish in such a position with us.

8. R. ALBIFLORUM, *Hook.*, 1834.

[A. ALBIFLORA, *Kuntze*, 1891].

This species and the foregoing species may hardly be classed amongst the Azaleas, but present certain external characters similar to them. R. ALBIFLORUM is a native of the high mountains on the edge of timber line in Montana, Oregon and the southern Canadian Rockies. This is a poor species not worth growing as a garden plant, being bad and straggling in habit with loose dull white axillary flowers.

9. R. VASEYI, *Gray*, 1879.

A. VASEYI, *Rehder*, 1899. [BILTIA VASEYI, *Small*, 1903]

A deciduous shrub from 12 to 15 feet high, bushy; leaves cuneate-oval tapering at both ends; flowers rich pink, four to eight, appearing before the leaves.

This lovely species was first discovered by G. R. Vasey, in North Carolina, in 1878, and introduced in 1891.* It likes a damp shaded position and warrants more attention than it has received from gardeners.

Broadly speaking the foregoing species were all the so-called American Azaleas known to gardeners until recent years, whilst the first six were amongst the species generally used for the creation of " Ghent " Azaleas. It is doubtful if R. ARBORESCENS has been used to any extent as a breeder, whilst R. RHODORA, R. ALBIFLORUM and R. VASEYI so far as we know have not been used at all.

The following species have been recently described as New American Azaleas, and are now included in the genus Rhododendron. For the most part they are only local forms of better known species, and up to the present have not been used for hybridisation.

10. R. AUSTRINUM. A. AUSTRINA, *Small*, 1913.

A deciduous shrub up to 12 feet high with irregular branches and pubescent and usually glandular twigs; leaves oval, obovate or oblong; short-petioled;

* c.f.p. 119 where Professor Sargent gives this date as about 1880.—C.C.E.

flowers expanding before the leaves ; corolla yellow or orange. A native of Central Florida.

11. R. PRINOPHYLLUM. A. PRINOPHYLLA, *Small*, 1914.

[R. CANESCENS, *Porter*, 1889 and *not* R. CANESCENS, *G. Don* or A. CANESCENS, *Michaux*].

A deciduous shrub up to 15 feet high with irregularly branched stems and finely pubescent twigs ; leaves, oval or elliptic, varying to obovate ; flower-clusters expanding before or with the leaves ; corolla deep pink to whitish. A native of Massachusetts, Vermont, and New York, and extending south to Virginia and Tennessee.

12. R. CANDIDUM. A. CANDIDA, *Small*, 1901.

A deciduous shrub up to 6 feet high, with widely branched stems and tormentulose and often glandular twigs ; leaves obovate, lanceolate, cuneate or oblong ; flower-clusters expanding after the leaves ; corolla white or pinkish. A native of Georgia and Florida.

13. R. OBLONGIFOLIUM. A. OBLONGIFOLIA, *Small*, 1903.

A deciduous shrub 6 feet or less high, with erect or spreading branches and finely pubescent and somewhat hirsute twigs ; leaves oblong-oblanceolate or obovate ; flower-clusters expanding after the leaves ; corolla white or pink. Distributed throughout Arkansas and Texas.

14. R. SERRULATUM. A. SERRULATA, *Small*, 1903.

A deciduous shrub 12 feet or less high with irregularly spreading branches and sparingly strigose twigs ; leaves oblong or oval or elliptic-oblanceolate ; flowers expanding after the leaves ; corolla white. A native of peninsular Florida.

15. R. PRUNIFOLIUM. A. PRUNIFOLIA, *Small* 1913.

A deciduous shrub up to 9 feet high, with irregular branches and smooth twigs ; leaves obovate, oval or narrow-elliptic ; flowers expanding after the leaves ; corolla crimson. A native of south-west Georgia and eastern Alabama.

With regard to the botanical position of the foregoing species and so-called species, we have received the following letter from Professor Bayley Balfour :—

" You find here that including what we call AZALEA VASEYI, which they (the American botanists) now make a distinct genus, BILTIA, because the upper lobe of the corolla is external not internal, there are 12 species of Azalea in America.

" A. CALENDULACEA (which they now call A. LUTEA).

"A. NUDIFLORA, A. CANESCENS, A. VISCOSA, A. ARBORESCENS, A. OCCIDENTALIS (they now call A. CALIFORNICA).

"The first five are the names of species which were used in all the old hybridisation experiments. A. OCCIDENTALIS came in later and has also been used, but the first work was undoubtedly with the other five species I have named. How far the plants to which names have now been given, namely: A. AUSTRINA, A. PRINOPHYLLA, A. CANDIDA, A. OBLONGIFOLIA, A. SERRULATA and A. PRUNIFOLIA were used up with these old species and have had therefore a share in some of the hybridisation work will require to be carefully investigated. If you get the book I name (NORTH AMER. FLORA, Part I., Vol. XXIX.), you will have a botanical basis for a start upon the problem you are going to investigate. My own experience with these Azaleas has been far from satisfactory. It is very difficult to get plants that conform with the technical descriptions that are given. I imported a great number from America about 28 years ago, and many of them are not true to the descriptions.

"I am venturing to send you on loan what I think may be of interest to you:

"1. Loddiges' catalogue of plants for 1820 and 1823, in which you will find lists of the Azaleas then in cultivation.

"You will be able to separate the American ones from those that are not American, and the catalogue will serve to show you what a number of varieties there were in cultivation at so early a date. Some of the plants named in the catalogue are figured in Loddiges' Bot. Cabinet, and, as is explained at the beginning of each of the lists, the number after the names refers to figures in the Cabinet.

"2. I am also sending you by way of illustration of the state of Azalea culture in France early in the last century, a catalogue of Cels nursery for the year 1836-1837. By that time SINENSIS forms were in as you will see. The catalogue will give you a picture of the state of cultivation a little later than that shown by Loddiges'.

"3. And then I am sending to you a third catalogue, namely of Peter Lawson & Sons, the famous Scottish nurserymen, of date 1858, after the Ghent Azaleas had come in, and you will there read both of the varieties of American species and also of the so-called Ghent varieties.

"These catalogues may, I hope, give you some help in your work.

"I. BAYLEY BALFOUR."

It may be pointed out that R. VASEYI is the first of the American species to flower (early May), and this is followed almost immediately by R. RHODORA*: next in order come R. CANESCENS and R. NUDIFLORUM (late May and early June), then R. CALENDULACEUM (June), R. ARBORESCENS (June-July), and R. VISCOSUM last of all (mid-July).

* R. RHODORA always flowers before R. VASEYI at Kew—usually in mid-April.—W.J.B.

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It would seem to be the case that Americans paid but little attention to the Fauna and Flora of their own country in the early part of the last century and prior to this date. Nearly all work for the discovery of new species was done by Englishmen, who travelled into the comparatively unknown wilds and gathered new treasures, which they sent for identification to scientists and nursery gardeners in England. Our people, however, seem to have confined their attention at first more to the crossing of the evergreen species of Rhododendrons, using such few species as R. CATAWBIENSE, R. MAXIMUM, and the eastern R. PONTICUM, R. CAUCASICUM and R. ARBOREUM, rather than the American Azaleas.

The first hybrid raised in England (about the year 1810), occurred in Mr. Thompson's nursery in London, through the accidental crossing of R. PONTICUM and R. NUDIFLORUM. It is still well known as R. "ODORATUM" or R. "AZALEOIDES." From this Dr. Masters invented the name "AZALEODENDRON" to distinguish the group of hybrids between evergreen Rhododendrons and deciduous Azaleas, R. "GOWENIANUM," R. "ODORATUM," R. "WILLIAMSII," etc., being well-known examples. About the year 1826, the Earl of Liverpool, Mr. Gowen (head gardener to the Earl of Carnarvon) and Dean Herbert worked successfully in obtaining many hybrids, chiefly amongst evergreen species. Mr. Gowen, however, created several hybrids between American Azaleas and eastern species, whilst Dean Herbert mated many evergreen Rhododendrons with Pontic and American Azaleas. What has become of the hybrids raised by the last named we do not know, but many of Mr. Gowen's hybrids are still in existence, such as R. "CARTONI" (R. NUDIFLORUM × R. CATAWBIENSE) and R. "GOWENIANUM" (R. NUDIFLORUM × R. VISCOSUM × R. PONTICUM × R. CATAWBIENSE). In 1829, E. Smith, of Surbiton, also made numerous crosses with American and other Azaleas.

The first man in Europe to grasp the commercial possibilities of the American Azaleas was a Belgian baker named Mortier, who lived in the town of Ghent, and as far as we can ascertain he commenced to work about the year 1815, using such species as R. CALENDULACEUM, R. NUDIFLORUM, R. VISCOSUM, R. CANESCENS, and possibly R. ARBORESCENS. There is little doubt that he also used as a parent (to get intense yellow) R. FLAVUM (A. PONTICA). Professor Sargent considers that, as Mortier was the originator of the Ghent Azaleas, they should in future be known as R. "MORTIERI" (A. "MORTIERI"). It appears that by 1829, the Belgian nurserymen had seriously adopted Mortier hybrids and were annually adding large numbers of their own raising. These hybrids were found to be very popular and were exported in large numbers to all parts of Europe and America. About the year 1830 English nurserymen commenced the creation of these hybrids on similar lines, the most active workers being Lee and Kennedy and the Waterers, whilst Osborne, of Fulham, followed a little later.

In 1836 Loudon in his catalogue gives a long list of named varieties, whilst Loddiges at this date enumerated 107 varieties, a smaller number only being given in his catalogues of 1820 and 1823. At the same date (1836), the culture of American Azaleas crossed with R. FLAVUM (A. PONTICA) and R. MOLLE (A. MOLLIS et A. SINENSE ?) was extensively undertaken in France, as we see from Cels catalogue of that date.

In all these hybrids the influence of one or more parents is apparent. Yellow were obtained by using R. FLAVUM, intense orange with R. CALENDULACEUM, honeysuckle-like flowers with R. VISCOSUM, full whites with R. ARBORESCENS, pinks with R. NUDIFLORUM and probably R. MOLLE, and size of flowers with R. MOLLE.

When all is said it is a questionable matter if any of these hybrids exceeded in beauty the pure species, such as R. CALENDULACEUM or R. MOLLE. In flaming orange the varieties "WILLIAM III.," "NE PLUS ULTRA," and "GLORIA MUNDI" are perhaps as fine as the first-named, but none of the modern Ghent Azaleas surpass in richness of colour or in size of flowers the varieties of R. MOLLE known as "ALPHONSE LA VALLEE (scarlet-orange), J. C. VAN TOL" (deep-red) and "MRS. L. J. ENDTZ" (deep yellow).

The most industrious of the Belgian firms between the years 1836-1870, were Cassel, Verschaffelt, Van Houtte, and Vuylsteke, and these continued their activity up to the date of the Great War (1914), when most of the original members of those firms had long since passed away.

It is doubtful as to who first used the American R. OCCIDENTALE (A. OCCIDENTALIS), so as to get large white or cream varieties with a yellow blotch. Those of us who are gardeners know well how "kittle" the true species is under cultivation. It grows slowly or only occasionally flowers. Doubtless our predecessors grasped this fact and were as anxious as ourselves to evolve hybrids with the floriferousness of the "Ghent Azaleas" with the pure qualities of the R. OCCIDENTALE flowers. The first worker we can trace with certainty was Isaac Davies, of Ormskirk, who produced the charming sweet-scented hybrid known as A. "DAVIESI," a plant that is still popular in our gardens. He raised many such hybrids with R. OCCIDENTALE strain and also others of the R. "BROUGHTONI AUREUM" class, most of which are unfortunately now lost to cultivation.

A long pause seemed to have taken place before any other nurseryman attempted to work with R. OCCIDENTALE as a parent. About the year 1880 Mr. Anthony Waterer (of Knap Hill), who has all his life made a speciality of improving the "Ghent" Azaleas on lines of his own, introduced an R. OCCIDENTALE strain. At first his efforts met with little success, but by constantly selecting the best and recrossing back to the pure species he has now evolved a line of white large-flowered hybrids with yellow blotch that are in every way as fine or better than the true species. It only requires a visit to his extensive nurseries in the early part of June to prove the truth of this assertion. Mr. Anthony Waterer too has now brought the creation of hybrid Azaleas to such a pitch of perfection, far surpassing all but a few of the very best of the old "Ghents" that it seems as if he had reached a finality in what we can expect in a hardy garden hybrid Azalea. White, red, orange, tinted hose-in-hose of various colours are there in abundance, whilst at present only a few very large pure pinks have been achieved, but of these he will probably have a sufficient stock in a few years. His strain of pure scarlets too are not to be seen in any other nursery, and these were achieved by constant crossing and recrossing of R. CALENDULACEUM with R. MOLLE. Mr. Anthony Waterer has never exhibited

his best hybrids so the public are in complete ignorance of the wonderful hybrids he has produced.

Within the past ten years Messrs. Koster & Sons, of Van Nes Boskoop, Holland, have paid much attention to the use of R. OCCIDENTALE, and Messrs. Cuthbert (the English agent of the first-named firm) have been active in distributing such lovely and hardy hybrids of this species as "EXQUISITE," "MAGNIFICA," "GRACIOSA," and "SUPERBA."

All of these are excellent garden plants and give effective displays annually in the garden if the flower-trusses are picked off as soon as they have faded. In recent years Mr. George Paul has paid some attention to improving Ghent Azaleas, and we would call the attention of members to two varieties of unusual excellence which he has created, namely, "HIGH BEECH SCARLET" (intense scarlet) and "PINK BEAUTY," a fine pink hybrid for planting in groups.

In the cultivation of these plants it is well to remember that if the gardener wishes to have a fine display every year, it is just as essential to pick off the seed-pods as with other Rhododendrons. This is, we know, a trouble, and the faded flowers and seed vessels are not so easy to remove as in the case of the larger blooming Rhododendrons. Nevertheless, a little practice will make it easy and the result fully compensates for the work involved. They should also be well watered at the growing season, and especially when the beds are isolated on the lawn as is often the case. All these Azaleas give fine colours in bronze and red in the autumn before the leaves fall. If we wish to grow them to perfection they do best in the semi-shade of a wood.

Ghent Azaleas are easily forced by taking into a greenhouse in January and subjecting them to ordinary forcing treatment. The market growers gum the flowers when fully expanded by forcing gum between the calyx and corolla of each flower. When thus treated the flowers last for weeks. Before actually taking them into the drawing-room or hall, the plants should be placed in a lower temperature with more light.

The choice of plants is always a matter of individual taste. The following are perhaps the best "Ghent Azaleas" now appearing in British and Continental catalogues :—

"AURORE DE RHYGHEM," golden-yellow, shaded with orange, upper lobes darker, large trusses of flowers.
"FAMA," mauve, with yellow spot.
"GLORIA MUNDI," vermilion, upper lobes entirely spotted with apricot-yellow.
"UNIQUE," golden-yellow, shaded with orange, fine trusses of big flowers.
"BEAUTE CELESTE," bright pink, upper lobes spotted with canary-yellow.
"BRILLIANT," red flowers, orange on the reverse side.
"JULDA SCHUPP," blood-red, large trusses and flowers.
"BRONZE UNIQUE," blood-red, spotted with vermilion.
"WILLIAM II.", orange.
"PINK BEAUTY," pink.
"HIGH BEECH SCARLET," scarlet.

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The months of May and June may be made glorious by having a good succession of the best Azaleas. From May 5th to 20th, R. MOLLE is at its best ; May 18th to May 30th, R. FLAVUM, May 20th to June 18th, the Ghents are in full flower, and May 30th to June 20th, the Anthony Waterer hybrids. Especially are they valuable to force contrast by means of yellow masses which cannot be found in the true hardy Rhododendrons (except R. " BROUGHTONI AUREUM " and R. " SMITHII AUREUM "). Kew in late May and early June has ever been a Mecca of garden lovers in " Azalea " time, and when we consider that any garden of suitable soil can be made so lovely, these glorious shrubs should be the first consideration for those who only desire plants of exceptional beauty with ease of culture.

J. G. MILLAIS.

January, 1917. P. D. WILLIAMS.

LIST OF RHODODENDRON SPECIES GROWING AT CAERHAYS CASTLE, CORNWALL, IN JULY, 1917.

CONTRIBUTED BY J. C. WILLIAMS.

The following list of Rhododendron species growing at Caerhays is the outcome of a request conveyed through the Honorary Secretary. As the Notes of the Rhododendron Society is a private publication, and the circulation is confined to contributors, Mr. Williams very kindly consented.

In a letter to Mr. Eley, dated 23rd August, 1917, Mr. Williams writes: "I am sending you a list of plants here and also some outlines of things which have flowered lately (see p. 183). The list of species is very hard to get right, for example, DAVIDII and OREODOXA of Wilson's collection run into one another, and the numbers are mixed I believe; moreover, Professor Bayley Balfour doubts if R. OREODOXA is in this country at all. Further, I believe that both these species are tangled up with hybrids from and with R. PACHYTRICHUM and R. MACULIFERUM, though I have not yet made good the geographical facts for this suspicion."

It will be seen that the total number of Rhododendron species and natural varieties growing at Caerhays, in July, 1917, was 264.

In a subsequent letter to Mr. Eley, dated 17th December, 1917, Mr. Williams writes in reply to enquiries: "As to R. VIRGATUM, Professor Bayley Balfour has now called Nos. 6770 and 9342 SINOVIRGATUM, and they are remarkably near to the picture of what Hooker calls R. VIRGATUM.

Nos. 5880 and 5881 Professor Bayley Balfour now calls EUANTHUM, and I believe doubts if Forrest ever found R. SHELTONÆ: moreover, Wilson tells me that he (Wilson) never got seed of it.

I have never had R. RHODORA here or indeed anywhere else.

R. YUNNANENSE is for the present submerged by the Professor under a mass of near relations; and he cannot yet tell me which is the true form; although I have the form sent home by Delavay, and many other forms also, perhaps all that are as yet in cultivation. R. OCCIDENTALE pure has never been on these premises.

As regards the word "Series," used frequently throughout the list, I have copied this off Professor Balfour's lists. I believe that when the Professor has a group of allied plants under consideration he "lumps" the doubtful ones under the word "Series," and postpones sorting them until such time as he is able to undertake the work. There are a great many in this category now, not a few of which are growing here, and some have flowered."

The Society is much indebted to Mr. Williams for the work entailed in the production of this list, and to Mr. W. J. Bean, who has kindly helped by checking the authors' names and has made several valuable suggestions.

C. C. E.

December, 1917.

1.	ADENOGYNUM, *Diels*	5868–5871 Forrest. (China). †
2.	ADENOGYNUM, not named (?) ..	Similar to, but not felted. No.1. Captain Bailey. (Upper Brahmaputra). †
3.	ADENOGYNUM Series	11321 Forrest, un-named. (China). †
4.	ADENOPHORUM, *Balf. et W. W. Sm.*	10429 Forrest. (China). †
5.	ADENOPODUM, *Franch.*	505 Wilson. (China). *
6.	AFGHANICUM, *Aitch. et Hemsl.* ..	(Asia). * ‡
7.	ALBIFLORUM, *Hook. f.*	(America). *
8.	AMBIGUUM, *Hemsley*	4252 etc. Wilson. (China). †
9.	AMESIÆ, *Rehder et Wilson* ..	4233 Wilson. (China). †
10.	AMOENUM, *Planch.*	(Japan). *
11.	ANTHOPOGON, *D. Don*	(Asia). *
12.	APODECTUM, *Balf. et W. W. Sm.*	8987–9054 Forrest. (China). *
13.	ARBORESCENS, *Torr.*	(America). *
14.	ARBOREUM, *Smith*..	Pink. (India). *
15.	ARBOREUM, *Smith*..	Red. (India). *
16.	ARBOREUM, Type of	No. 3. Captain Bailey. (Upper Brahmaputra). *
17.	ARBOREUM, var. SIR CHARLES LEMON, *Hort.*	(India). *
18.	ARBOREUM, var. ALBUM, *Wallich*	(India). *
19.	ARGENTEUM, *Hook. f.*	(India). *
20.	ARGENTEUM	Similar to, from Captain Cuthbert. *
21.	ARGYROPHYLLUM, *Franch.* ..	1521, etc., etc., Wilson. (China). †
22.	ASSAMICUM, *Hort.*	(Asia). (See GARDENERS' CHRONICLE, 1881, i. p. 8). *
23.	ATUNTZI COUNTRY, 1 plant from	From Bees, Ltd. *
24.	AUCKLANDII, *Hook. f.*	(India). *
25.	AUGUSTINII, *Hemsley*	598 etc., Wilson. (China). †
26.	AURICULATUM, *Hemsley*	920 Wilson. (China). †

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.
‡ Sent to me as AFGHANICUM but is really CEPHALANTHUM.—J.C.W.

27.	AUSTRINUM, *Millais*	(America). *
28.	BALFOURIANUM, *Diels*	6774 Forrest. (China). *
29.	BARBATUM, *G. Don*	(India). *
30.	BASILICUM, *Balf. et W. W. Sm.* ..	8990–12078 Forrest. (China). *
31.	BEESIANUM, *Diels*	10195–10546–11313–13032–13143 Forrest. (China). †
32.	BEESIANUM FULVUM Series ..	10477 Forrest, un-named. (China). †
33.	BOOTHII, *Nutt.*	(India). *
34.	BRACHYCARPUM, *G. Don* ..	(Japan). *
35.	BRACTEATUM, *Rehder et Wilson*	4253 Wilson. (China). *
36.	BRETTII, *Hemsley et Wilson* ..	1278 etc., Wilson. (China). *
37.	BULLATUM, *Franch.*	XXII. of 1910–11 Forrest. (China). *
38.	CALENDULACEUM, *Torr.*	(America). *
39.	CALIFORNICUM, *Hook.*	(America). *
40.	CALLIMORPHUM, *Balf. et W. W. Sm.*	9055 Forrest. (China). *
41.	CALOPHYTUM, *Franch.*	1523, etc., Wilson. (China). †
42.	CAMPANULATUM, *D. Don* ..	(India). *
43.	CAMPYLOCARPUM, *Hook. f.* ..	(India). *
44.	CAMPYLOGYNUM, *Franch.* (Aff. to)	13303 Forrest, un-named. (China). †
45.	CAMPYLOGYNUM, *Franch.* ..	13518 Forrest. (China). †
46.	CANDIDUM, *Small*	(America). *
47.	CANESCENS, *G. Don*	(America). *
48.	CAROLINIANUM, *Rehder*	(America). *
49.	CATAWBIENSE, *Michx.*	(America). *
50.	CAUCASICUM, *Pall.*	(Asia). *
51.	CEPHALANTHOIDES, *Balf. et W. W. Sm.*	5866 (probably) : Forrest. (China). †
52	CEPHALANTHOIDES MICROFORME, *Balf. et W. W. Sm.*	10312 Forrest. (China). †

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

53.	CEPHALANTHUM, *Franch...* ..	6756 Forrest. (China). *
54.	CHAMPIONÆ, *Hook.*	(China). *
55.	CHARTOPHYLLUM, *Franch.* Series	5874 – 10058 Forrest, un-named. (China). †
56.	CHRYSANTHUM, *Pall.*	Flowers from August to January. (Asia). *
57.	CILIATUM, *Hook. f.*	(India). *
58.	CILIICALYX, *Franch.*	9919 Forrest. (China). Lingers at Caerhays.
59.	CILIICALYX, *Franch.* .. .. (Aff. to CILIICALYX 6764).	*Forma* 9919 Forrest, un-named. (China). Lingers at Caerhays.
60.	CINNABARINUM, *Hook. f...* ..	Flowers from May to July. (India).
61.	CLEMENTINÆ, *G. Forrest* ..	10857–11486–12607 Forrest. (China). †
62.	COOPERI, *Balf. et W. W. Sm.* ..	3507 Cooper, 1914. (Bhotan).
63.	COREANUM, *Rehder*	(Corea). *
64.	CRASSUM, *Franch.*	9431 Forrest. (China). Flowers from June to September. *
65.	CROCEUM, *Balf. et W. W. Sm.* ..	10428–10680–11317–12731–12969 Forrest. (China).
66.	CUNEATUM, *W. W. Sm.*	10059–10071–10435 Forrest. (China).
67.	CUNEATUM, Type of	No. V. Captain Bailey. (Upper Brahmaputra).
68.	CYANOCARPUM, *Franch.*	6775–6778 Forrest. (China). †
69.	DALHOUSIÆ, *Hook. f.*	(India). *
70.	DAURICUM, *Linn.*	(Siberia). Flowers from November to February. *
71.	DAURICUM SEMPERVIRENS, *Sims*	(Siberia). Flowers from November to February. *
72.	DAVIDII, *Franch.*	1531 Wilson. (China).
73.	DAVIDII	Like 70D. Came about 1912 (from Bees, Ltd.).
74.	DAVIDSONIANUM, *Rehder et Wilson*	1535 Wilson. (China).

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

75.	DECORUM, *Franch.*	1209–4257–1782 Wilson. (China). Flowers from April to November. Flowers only cut at Werrington in part. *
76.	DELAVAYI, *Franch.*	6769–7463–11073–11074 Forrest. (China). Cut at Werrington badly. *
77.	DELAVAYI (Aff. to)	13380 Forrest, un-named. (China).
78.	DICHROANTHUM, *Diels*	6761–11597 Forrest. (China). Some flowers in the autumn, about August, a very remarkable colour. †
79.	DILATATUM, *Miquel*	(Japan). Seems in the case of one plant to colour well from August to September. Flowers about April. †
80.	DISCOLOR, *Franch.*	586 Wilson. (China). †
81.	EDGEWORTHII, *Hook. f.* ..	(India). Flowers in late April, the scent has hardly a rival. *
82.	ELÆAGNOIDES, *Hook. f.* ..	(India). Hardy at Werrington.
83.	EUANTHUM, *Balf. et W. W. Sm.* ..	5880–5881 Forrest. (China). Not yet flowered. †
84.	EXIMIUM, *Nutt.*	(India). *
85.	FABERI, *Hemsley*	1538–1547–1867 Wilson. (China). †
86.	FALCONERI, *Hook. f.*	(India). *
87.	FARGESII, *Franch.*	1250 Wilson. (China). *
88.	FASTIGIATUM, *Franch.*	5847–10055–11626 Forrest. (China). Flowers in almost any month, but about August and April for the main crops. †
89.	FASTIGIATUM (?)	Section 39 of Ward (from Bees, Ltd., 1914) †
90.	FASTIGIATUM Series	10311–10434 Forrest, un-named. (China). †
91.	FICTOLACTEUM, *Balf. et W. W. Sm.*	5843 Forrest. (China). †

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

92.	FICTOLACTEUM Series	10974–12948 Forrest, un-named. (China). †
93.	FITTIANUM, *Balf. et W. W. Sm.*	Forrest. (China). †
94.	FLAMMEUM, *Hort.*	(America).
95.	FLAVIDUM, *Franch.*	1773–1202 Wilson. (China). Flowers about March and April and again in the autumn. †
96.	FLAVUM, *G. Don*..	(AZALEA PONTICA). (Asia Minor). *
97.	FLOCCIGERUM, *Franch.*	12893–13299 Forrest. (China). *
98.	FLOCCIGERUM Series	12889–13387–13438 Forrest, un-named. (China). *
99.	FLORIBUNDUM, *Franch.*.. ..	4266 Wilson. (China). †
100.	FORMOSUM, *Wallich*	(India). *
101.	FORRESTII, *Balf.*..	13259 Forrest. (China). †
102.	FORTUNEI, *Lindl.*	885, etc., Wilson. (China). Flowers in June and July. †
103.	FORTUNEI Series	5869–6776 Forrest, un-named. (China). Flowers March and April. *
104.	FULGENS, *Hook. f.*	(India). *
105.	FULVUM, *Balf. et W. W. Sm.* ..	8989 Forrest. (China). †
106.	GLAUCUM, *Hook. f.*	(India). *
107.	GLISCHRUM, *Balf. et W. W. Sm.*	12901 Forrest. (China). †
108.	HABROTRICHUM, *Balf. et W.W. Sm.*	9048–12054 Forrest. (China). Cut at Werrington when very young. *
109.	HÆMATODES, *Franch.*	6773 Forrest. (China). Flowers in autumn and spring. †
110.	HANCEANUM, *Hemsley*	882–4255 Wilson. (China). †
111.	HELIOLEPIS, *Franch.*	10438 Forrest. (China).
112.	HIPPOPHÆOIDES, *Balf. et W. W. Sm.*	10333–12461 Forrest. (China). Flowers in autumn and early spring, and is of a rare beauty in the best forms. †

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

113.	HIRSUTUM, *Linn.*	(Europe). *
114.	HODGSONII, *Hook. f.*	(India). *
115.	HOOKERI, *Nutt*	(India). *
116.	HOULSTONII, *Hemsley et Wilson*	648 (?) Wilson. (China). Flowers about April. *
117.	HUNNEWELLIANUM, *Rehder et Wilson*	4248–1198 Wilson. (China). †
118.	HYLOTHREPTUM, *Balf. et W. W. Sm.*	5848 Forrest. (China). *
119.	HYPOGLAUCUM, *Hemsley* ..	311 Wilson. (China). †
120.	HYPOLEPIDOTUM, *Balf. et W. W. Sm.*	13302 Forrest. (China). *
121.	IDONEUM, *Balf. et W. W. Sm.* ..	12623 Forrest. (China). †
122.	IMPEDITUM, *Balf. et W. W. Sm.*	5863–5876 Forrest (China). Flowers in the early spring. †
123.	INSIGNE, *Hemsley et Wilson* ..	1339 Wilson. (China). *
124.	INTRICATUM, *Franch.*	1543 Wilson. (China). Flowers in the spring and autumn. †
125.	IRRORATUM, *Franch.*	5851 Forrest. (China). Flowers early in the spring. ‡
126.	IRRORATUM Series	10651 (purple) Forrest, un-named. (China).
127.	IXEUTICUM. *Balf. et W. W. Sm.*..	12944–13244 Forrest. (China).
128.	KÆMPFERI, *Planch.*	(Japan). Flowers about April. *
129.	KAMTSCHATICUM, *Pall.*	(Asia). Has never flowered. *
130.	KEISKII, *Miquel*	(Japan). Flowers in February to March. *
131.	KEYSII, *Nutt.*	(India). Flowers in the spring and at odd times. *
132.	LACTEUM, *Franch.*	6778–11575 Forrest. (China). Doubtful at Werrington. *
133.	LACTEUM (?)	4254 Wilson. Is far from flowering. †
134.	LANATUM, *Hook. f.*	(India). Flowers about March to April. *

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.
‡ Hardy at Caerhays, *not* hardy at Werrington.

135.	LEDIFOLIUM, *G. Don*	(Japan). *
136.	LEDOIDES, *Balf. et W. W. Sm.* ..	11246 Forrest. (China). Flowers about April. Has a flower like a Daphne. †
137.	LEPIDOTUM, *Wallich*	Near 3497. Cooper, 1914. (India). Flowers in the spring and autumn.*
138.	LEPIDOTUM, Type of	No. IV. Captain Bailey. (Upper Brahmaputra). Flowers in the spring and autumn. *
139.	LINDLEYI, *Moore*	(India). Flowers in the spring. *
140.	LINEARIFOLIUM, *Sieb. et Zucc.* ..	(Japan). *
141.	LONGISTYLUM, *Rehder et Wilson*	1204 Wilson. (China). Flowers very early. *
142.	LUTESCENS, *Franch.*	1195, etc., Wilson. (China). Flowers in the spring and autumn, but is early, say February. *
143.	MACULIFERUM, *Franch.*	944 Wilson. (China). Flowers about April. *
144.	MADDENII, *Hook. f.*	(India). Flowers from May to September, according to the form of it.
145.	MADDENII, A form of	No. II. Captain Bailey. (Upper Brahmaputra). ‡
146.	MARIESII, *Hemsley et Wilson* ..	(China.)
147.	MAXIMUM, *Linn.*	(America). *
148.	MELINANTHUM, *Balf. et W. W. Sm.*	406 (from Bees, Ltd., 1914). (Upper Burma). †
149.	METTERNICHII, *Sieb. et Zucc.* .	(Japan). *
150.	MICRANTHUM, *Turcz.*	1218–1200 Wilson. (China). Flowers in spring and autumn, †
151.	MICROPHYTON, *Franch.*	7832–12084–12085 Forrest. (China). Flowers early. Not hardy at Werrington, I *think*. *
152.	MOLLE, *G. Don*	(Japan). *

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.
‡ Hardy at Caerhays, *not* hardy at Werrington.

153.	MOLLICOMUM, *Balf. et W. W. Sm.*	13047 Forrest. (China). Flowers about April. ‡
154.	MONOSEMATUM, *Hutchinson* ..	1522 Wilson. (China). *
155.	MOUPINENSE, *Franch.*	879–4256 Wilson. (China). Flowers from December to March. ‡
156.	MUCRONULATUM, *Turcz...* ..	(Corea). Flowers from November to January. The best winter flower of the family. †
157.	NERIIFLORUM, *Franch.*	6780 Forrest. (China). Flowers in spring and autumn. †
158.	NIPHARGUM, *Balf. et W. W. Sm.*	10292–10639 Forrest. (China). *
159.	NIVALE, *Hook. f.*	3483 Cooper, 1914. (Bhotan). Not sure yet.
160.	NIVEUM, *Hook. f.*	(India). Flowers in April. *
161.	NUDIFLORUM, *Torr.*	(America). *
162.	NUTTALLII, *Booth ex Nutt.* ..	(India). Flowers rather late in the spring. Hardy at Caerhays on a wall (in most years).
163.	OBTUSUM ALBUM, *Planch.* ..	(Japan). *
164.	ORBICULARE, *Decaisne*	1519–1810 Wilson. (China). Flowers in April at Caerhays. †
165.	OREODOXA, *Franch.*	1211–1541 Wilson. (China). Flowers about April. †
166.	OREOTREPHES, *W. W. Sm.* ..	5873–10210–10297 Forrest. (China). Flowers about April. †
167.	OVATUM, *Planch.*	938–1391 Wilson. (China). Flowers in April. A beautiful shrub, but a difficult subject. *
168.	OVATUM Series	9341 – 12845. Forrest, un-named. (China). Killed at Werrington. *
169.	PACHYPODUM, *Balf. et W. W. Sm.*	13512 Forrest. (China). Yellow flowers early in March.
170.	PACHYTRICHUM, *Franch.* ..	1203–1865 Wilson. (China). Flowers in April. †
171.	PARVIFOLIUM, *Adams*	(Asia). Flowers in July. *

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.
‡ Hardy at Caerhays, *not* hardy at Werrington.

172.	PENDULUM, *Hook. f.*	(India). Not tried it in the open yet.
173.	PENTAPHYLLUM, *Maxim.* ..	(Japan). *
174.	PHÆOCHRYSUM, *Balf. et W. W. Sm.*	10547 Forrest. (China). †
175.	PHOLIDOTUM, *Balf. et W W. Sm.*	6762 Forrest. (China). *
176.	PLATYPHYLLUM, ... *Balf. et W. W. Sm.*	13526 Forrest. (China). †
177.	PLEBEIUM, *Balf. et W. W. Sm.* ..	8938 Forrest. (China). *
178.	POLYLEPIS, *Franch.*	1221, etc., Wilson. (China). †
179.	PONTICUM, *Linn.*	(Europe). Flowers in June. †
180.	PROSTRATUM, *W. W. Sm.* ..	5862–10285 Forrest. (China). Does best at Werrington. Flowers in the spring. Much injured by a caterpillar. †
181.	PRZEWALSKII, *Maxim.* ..	1863–4243 Wilson. (China). It rarely flowers. †
182.	PURABLUM, *Balf. et W. W. Sm.*	10616 Forrest. (China). †
183.	QUINQUEFOLIUM, *Biss. et S. Moore*	(Japan). *
184.	RACEMOSUM, *Franch.*	5882 (?) 10086 (?) Forrest. (China). †
185.	RADINUM *Balf. et W. W. Sm.* ..	10278 (?) Forrest. (China). *
186.	RAVUM, *Balf. et W. W. Sm.* ..	10423 Forrest. (China). Flowered in the autumn of 1917. †
187.	RHAIBOCARPUM, *Balf. et W. W. Sm.*	11312–12982 Forrest. (China). †
188.	RHANTUM, *Balf. et W. W. Sm.* ..	10075 Forrest. (China). †
189.	RHOMBICUM, *Miquel*	(Japan). †
190.	RIGIDUM, *Franch.* Series .. CHARTOPHYLLUM, *Franch.* (This plant is wrongly named).	13301–13439 Forrest, un-named. (China).
191.	RIRIEI, *Hemsl. et Wils.* ..	1808 Wilson. (China). Starts to grow too early if not in a cold aspect, and flowers in February. *
192.	ROXIEANUM, *Forrest*	10540–12947 Forrest. (China). *
193.	ROXIEANUM (Aff. to)	13005 Forrest, un-named. (China).
194.	ROYLEI, *Hook. f.*	(India). *

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

195.	RUBIGINOSUM, *Franch.*	5877–10057–10073–10074 Forrest. (China). †
196.	RUBIGINOSUM Series	No. 99. (Bought of Bees, Ltd.). Flowers in June. *
197.	RUPICOLUM, *W. W. Sm.* ..	5865–10314 Forrest. (China). Will grow in soil with some lime in it. Flowers in the spring. †
198.	SALUENENSE, *Franch.*	12968 Forrest. (China). *
199.	SALUENENSE Series	12934–13258 Forrest, un-named. (China).
200.	SANGUINEUM, *Franch.*	13304 Forrest. (China).
201.	SARGENTIANUM, *Rehder et Wilson*	1208 of 1908, 1288 of 1904, Wilson. (China). *
202.	SCABRIFOLIUM, *Franch.*	11031–11072 Forrest. (China). ‡
203.	SCHLIPPENBACHII, *Maxim.* ..	(Corea). Flowers in April. *
204.	SCINTILLANS, *Balf. et W. W. Sm.*	10014 Forrest. (China). A beautiful mountain form. †
205.	SEARSIÆ, *Rehder et Wilson* ..	1343 (?) Wilson. (China). *
206.	SEMIBARBATUM, *Maxim.* ..	(Japan). Hardy at Werrington.
207.	SERPYLLIFOLIUM, *Miquel* ..	(Japan). *
208.	SETOSUM, *D. Don*	(India). (?) only lately planted.
209.	SINENSE, *Sweet*	800 Wilson. (China). †
210.	SINOGRANDE, *Balf. et W. W. Sm.*	9021–11875 Forrest. (China). A very fine foliage plant, far finer than FALCONERI. ‡
211.	SINOLEPIDOTUM, *Balf. et W. W. Sm.*	5864 Forrest. (China). †
212.	SINOVIRGATUM, *Balf. et W. W. Sm.*	6770 Forrest. (China). *
213.	SMIRNOWII, *Trautv.*	(Caucasus). *
214.	SOULIEI, *Franch.*	1222–1540 Wilson. (China). We are unable to grow it well except by accident. *
215.	SPHÆRANTHUM, *Balf. et W. W. Sm.*	12505 Forrest. (China). *

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.
‡ Hardy at Caerhays, *not* hardy at Werrington.

216.	SPINULIFERUM, *Franch.* ..	Delavay's form. (China). On a wall. *
217.	STAMINEUM, *Franch.*	887 Wilson. (China). Flowers in mid-spring. Scented strongly. *
218.	STAMINEUM Series	7673 Forrest, un-named. (China). Not really hardy at Caerhays.
219.	STENAULUM, *Balf. et W. W. Sm.*	5530 Forrest. (China). Not too hardy at Caerhays.
220.	STEREOPHYLLUM, *Balf. et W. W. Sm.*	11299 Forrest. (China). †
221.	STRIGILLOSUM, *Franch.*	1341–1521 Wilson. (China). *
222.	SUBLANCEOLATUM, *Miquel* ..	(Japan). *
223.	SULFUREUM, *Franch.* MICROFORME	6777 Forrest. (China). †
224.	SUTCHUENENSE, *Franch.* ..	517–1232–509 Wilson. (China). Some flowers cut at Werrington. Open in March. *
225.	TALIENSE, *Franch.*	1539 Wilson. (China). *
226.	TALIENSE, *Franch.*	6772–11579–11583 Forrest. (China). *
227.	TELMATEIUM, *Balf. et W. W. Sm.*	10284 (?) Forrest. (China). Flowers in spring and autumn. †
228.	TEYSMANNII, *Miquel*	(Sumatra). Flowers on a wall at Caerhays in most years.
229.	THAYERIANUM, *Rehder et Wilson*	4273 Wilson. (China). †
230.	THEIOCHRUM, *Balf. et W. W. Sm.*	11910 Forrest. (China).
231.	THOMSONII, *Hook. f.*	(India). *
232.	TRAILLIANUM, *Smith et Forrest*	5870–10156–10204 Forrest. (China). †
233.	TRAILLIANUM (Aff. to)	10460 Forrest, un-named. (China).
234.	TRICHOCLADUM, *Franch.* ..	6755–11630 Forrest. (China). Flowers in spring and in autumn. †
235.	TRIFLORUM, *Hook. f.*	(India). *
236.	UNGERNII, *Trautv.*	(Caucasus). Flowers in late June. *

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.

237. VASEYI, *A. Gray* .. .. (America). Professor C. S. Sargent says it needs moisture. *

238. VERRUCULOSUM (?) *Rehder et Wilson* .. .. 1887 Wilson. (China). *

239. VILLOSUM, *Hemsley et Wilson* .. 1862–4242 Wilson. (China). *

240. WARDII, *W. W. Sm.* .. .. 529 (from Bees, Ltd., 1914). (China). *

241. WASONII, *Hemsley et Wilson* .. 1876 (?) Wilson. (China). *

242. WATSONII, *Hemsley et Wilson* .. 1872–4244–4251–4259 Wilson. (China). Not an easy plant to do and is very slow in growing. †

243. WEBSTERIANUM, *Rehder et Wilson* 1328 Wilson. (China). *

244. WELDIANUM, *Rehder et Wilson* .. 4235 Wilson. (China). †

245. WIGHTII, *Hook. f.* .. .. (India). *

246. WILLIAMSIANUM, *Rehder et Wilson* 1350 Wilson. (China). Flowers in April. †

247. WILSONÆ, *Hemsley et Wilson* .. 886 Wilson. (China). *

248. WILTONII, *Hemsley et Wilson* .. 1804 Wilson. (China). We have had it for ten years but it has had no flower so far. *

249. YANTHINUM, *Bureau et Franch.* Wilson. (China). †

250. ZALEUCUM, *Balf. et W. W. Sm.* .. 8923 Forrest. (China). ‡

251. ZEYLANICUM, *Hort. ex Lond.* .. (Ceylon). A slow grower. *

PURDOM'S RHODODENDRONS.

GIVEN BY MESSRS. VEITCH ABOUT 1913.

252. 163
253. 247 } Are like Forrest's 11313=BEESIANUM.

254. 622=3 plants of R. MICRANTHUM.

255. 788 is near 828.

256. 828 dwarf habit (so far). Light green leaf.

257. 829=6 FASTIGIATUM-like plants.

258. 868=2 plants.

* Hardy at Caerhays. † Hardy at Caerhays and at Werrington.
‡ Hardy at Caerhays, *not* hardy at Werrington.

FROM BEES, LTD., 1914.

259. 768 is like Purdom's 828.

FARRER'S SEEDS OF 1913.

260. 125=79 : 3 plants at Caerhays.
261. 126=119 : 2 INTRICATUM-like plants.
262. 339=364 : 3 CUNEATUM-like plants.
263. 63 seems to be near Purdom's 828.

} GARDENERS' CHRONICLE, 11*th December*, 1915.

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264. No. VI. (?) Captain Bailey (Upper Brahmaputra).

*CHINESE RHODODENDRONS INTRODUCED TO CULTIVATION IN EUROPE, WITH NAMES OF RAISER AND INTRODUCER AND DATE OF INTRODUCTION.

Contributed by Professor Bayley Balfour, F.R.S.

INTRODUCTORY NOTE.

In a letter to Mr. Eley, dated 9th January, 1918, Professor Bayley Balfour writes :—

" In response to your suggestion that I should write something for the forthcoming ' Notes ' of the Rhododendron Society, I send herewith a statement which I have prepared to show the Rhododendrons now in cultivation that have come to us from China and the bordering regions of Tibet and Burma, giving also the date of introduction of the species, the name of the raiser and of the introducer of the plant in cultivation. Although the inflow of these new Chinese Rhododendrons dates only from the late years of last century, it is not easy in some cases to obtain precise information about the date of their introduction or as to who really introduced them. But I think it is worth while to try to determine these points and it seems to me there could be no more fitting place than the ' Notes ' of your Society for the publication of a record of the kind, and perhaps if you publish the list it may bring welcome and useful criticism and correction. I have already embodied corrections made by Professor Sargent, Mr. Watson, of Kew, and Mr. J. C. Williams, of Caerhays, to all of whom I am indebted for assistance. To M. Maurice de Vilmorin I have not applied in vain, and still hope to obtain much valuable information from him. The early French introductions are the most difficult to determine and to date. Of the species named in the Fruticetum Vilmorinianum, published in 1904, all may not be in cultivation now, and certainly R. CAMPYLOGYNUM which is in the list has only come into cultivation in Britain through the plants raised by Mr. J. C. Williams, from Forrest's seeds.

The list is tentative and I send it in the hope of getting information."

For the purpose of record, and with the approval of Professor Balfour, the following brief particulars of the raisers and introducers are added :—

Bees. The firm of Bees, Ltd., of Liverpool. Proprietor, Mr. A. K. Bulley, of Ness, Neston, Cheshire.

Brookes, Samuel. A nurseryman, of Northampton Nursery, Ball's Pond, Newington Green.

Browne, Major C. W., Survey of India.

* Including adjacent Tibet and Burma.

Champion, Lieut.-Colonel John George (1815 ?–1854). See DICT. NAT. BIOGR.

Delavay, Père Jean Marie. A French missionary, born at Abondance, Haute Savoie in 1838. Joined French Foreign Missions, and in 1867 was sent to China. Died at Yunnansen, on 30th December, 1895.

Farges, Abbé Paul. A French missionary. Still collecting in Szechuan in 1898. See BULL. MUS. D'HIST. NAT. 1896, 279. Stated to be now dead.

Farrer, Captain. H.E.I.C. Brought R. FARRERÆ, named in compliment to Mrs. Farrer, (his wife ?), from China in ship "Orwell." Resident in Blackheath in or about 1838. See Sweet's FLOWER GARDEN, Series II., t. 95.

Ford, Charles. I.S.O. Formerly Superintendent Botanical and Forestry Department, Hong Kong, for about thirty years. Genus FORDIA named after him. Believed to be still living.

Forrest, George. Formerly of the Royal Botanic Garden, Edinburgh. A collector in China since 1904.

Fortune, Robert. (1813–1880). Traveller and botanist. See DICT. NAT. BIOGR.

Henry, Augustine. Now Professor of Forestry, Royal College of Science for Ireland, Dublin.

Longe, Lieut.-Colonel F. B., of Holly Lodge, Thorpe, Norwich.

Poole, Joseph. A gardener. Went to China to collect for Samuel Brookes in "Lady Melville," an Indiaman, in 1818.

Tate. A nurseryman, of Sloane Square, London.

Veitch. The firm of James Veitch & Son, Ltd., Nurserymen, of Chelsea. Founded near Exeter in 1808 ; removed to Chelsea in 1853 ; ceased business in 1915. Their Rhododendrons were raised in their nursery at Coombe Wood, Kingston-on-Thames, on land the property of the late Duke of Cambridge and his descendants.

Vilmorin, Maurice L. de, of Les Barres, Nogent sur Vernisson, Loiret.

Ward, Frank Kingdon. Son of the late Professor Marshall Ward, of Cambridge. Collected in China for Bees, Ltd. Now serving in Mesopotamian Field Force.

Williams, John Charles, of Caerhays Castle, Cornwall.

Wilson, Ernest Henry. Now of the Arnold Arboretum, Boston, U.S.A. Collected for Messrs. J. Veitch & Sons.

C. C. E.

BEES—FORREST.

adenogynum	1910
brachyanthum	1906
cephalanthoides	1910
chartophyllum	1910
crassum	1910
cuneatum	1910
cyanocarpum	1910
dichroanthum	1910
euanthum	1910
hæmatodes	1911
hylothreptum	1910
impeditum	1910
lacteum	1910
neriiflorum	1910
oreotrephes	1910
pholidotum	1910
prostratum	1910
rupicolum	1910
sinolepidotum	1906
stenaulum	1910
sycnanthum	1910
taliense	1910
Traillianum	1910
trichocladum	1910

WILLIAMS—FORREST.

adenophorum	1913
apodectum	1912
basilicum	1912
Beesianum	1913
callimorphum	1914
Clementinæ	1913
croceum	1913
diaprepes	1914
drumonium	1914
eriogynum	1914
Fittianum	1913
floccigerum	1914
Forrestii	1914
fulvum	1912
glischrum	1914
habrotrichum	1912
heliolepis	1913
hippophæoides	1913
hypolepidotum	1914
ixeuticum	1914
ledoides	1913
lepidanthum	1913
Martinianum	1914
melinanthum	1913
microphytum	1912
mollicomum	1913
niphargum	1913
pachypodum	1914
phæochrysum	1913
platyphyllum	1914
plebeium	1912
puralbum	1913
radinum	1913
ravum	1913
recurvum	1913
rhaibocarpum	1913
rhantum	1913
saluenense	1914
sanguineum	1914
scintillans	1913
sinogrande	1912
sphæranthum	1914
stereophyllum	1913
theiochroum	1913
Viali	1914
Wardii	1914
zaleucum	1912

VEITCH—WILSON

ambiguum	1904
argyrophyllum	1904
calophytum	1904
concinnum	1904
*Davidii	1904
Davidsonianum	1904
discolor	1900
Faberi	1904
Fargesii	1901
floribundum	1910
hæmatochilum	1904
Harrovianum	1903
hedyosmum	1904
Houlstonii	1904
insigne	1903
intricatum	1904

*As the result of recent seeings of cultivated specimens of so-called Davidii, I doubt it being in cultivation.—I.B.B.

longesquamatum	1903
lutescens	1904
maculiferum	1901
micranthum	1901
monosematum..	1903
pachytrichum	1904
polylepis	1904
primulinum	1904
Ririei	1904
Sargentianum	1904
Souliei	1904
stamineum	1900
sutchuenense	1901
villosum	1904
Wasonii	1904
Watsonii	1904
Wilsonæ	1903
Wiltonii	1904

ARNOLD ARBORETUM—WILSON.

Amesiæ..	1908
atroviride	1906
bracteatum	1908
charianthum	1908
erubescens	1908
Hanceanum	1908
Hunnewellianum	1908
longistylum	1908
moupinense	1908
Searsiæ	1908
strigillosum	1908
Thayerianum	1910
Websterianum..	1908
Weldianum	1910
Williamsianum	1908

R.H.S.—CHAMPION.

Championæ	1849

LONGE—BROWNE.

carneum	1909

KEW—HENRY.

Mariesii	1886

KEW—FORD.

Fordii	1894

BEES—WARD.

chryseum	1913

BROOKES—POOLE.

ledifolium	1819

PETROGRAD.

Przewalskii	

UNKNOWN.

indicum	before 1680
sinense	1828

JARDIN DES PLANTES—DELAVAY.

bullatum	about 1887
cephalanthum ..	,, 1887
ciliicalyx	,, 1887
decorum	,, 1887
Delavayi	,, 1887
fastigiatum	,, 1887
fictolacteum	,, 1887
irroratum	,, 1890
oleifolium	,, 1887
racemosum	1886
rubiginosum	1889
scabrifolium	1886
yunnanense	1886

VILMORIN—FARGES.

adenopodum	1901
Augustinii	1897

VILMORIN—DELAVAY.

spinuliferum	1907

VILMORIN. *

auriculatum .. .. ..
campylogynum .. ..
hypoglaucum .. .. ..
rigidum .. .. ..
rotundifolium .. .. ..

TATE—CAPT. FARRER.

Farreræ 1829

R.H.S.—FORTUNE.

Fortunei 1859
ovatum.. 1844

The following species are said to be or to have been in cultivation, but are unknown to me.—I. B. B.

Annæ .. ..
anthosphærum .. ..
apiculatum .. .. ..
Balfourianum .. .. ..
brevistylum .. .. ..
capitatum .. .. ..
Edgarianum .. .. ..
fragrans .. .. ..
idoneum .. .. ..
nigropunctatum .. ..
oreodoxa .. .. ..
oxyphyllum .. .. ..
rufescens .. .. ..
violaceum .. .. ..

* Included in Fruticetum Vilmorinianum.

The Rhododendron Society Notes.

Extract from a Letter of Professor Bayley Balfour to Mr. C. C. Eley.

Royal Botanic Garden, Edinburgh,
5th May, 1917.

"It is most kind of you to send to me Vol. I., No. 1, 1916, of the Rhododendron Society Notes, which I have read through from cover to cover with great interest and instruction.

I congratulate you and your Society upon the beginning of your records. These reports from different growers will be of perennial interest. How one wishes that there were such dicta from the earliest days of Rhododendron cultivation! It is only by knowing what plants are in cultivation in different gardens, the history of them, and the results of the observations of the growers, that Botany and Horticulture will obtain data for really knowing Rhododendrons. The gardener is the great practical œcologist from whom scientific botanists in the past have learned far less than they ought and might. That this is so is in a measure the consequence of the want of systematic record by gardeners of their experiences. In the pages of current gardening periodicals a few of these are given to the world but in too many cases the most acute observers are the least disposed to appear before the public through these channels; and then what a labour it is to search through these periodicals for information! I think the method of your 'Notes' is particularly happy in the freedom it offers to your members to write about cultivation and to give their opinions. The formality attaching even to a paragraph in a periodical often negates the expression of a view or the statement of an observation. Your plan removes formality and is more of the nature of a conversation between friends interested in the growing of the same group of plants.

I am sure that you will have the blessings of posterity."

I.B.B.

The Rhododendron Society Notes.

LAPPONICUM SERIES OF RHODODENDRONS.

CONTRIBUTED BY PROFESSOR BAYLEY BALFOUR, F.R.S.

I wonder if I might ask for the hospitality of the Rhododendron Society in the matter of obtaining information about the yellow-flowered forms of the LAPPONICUM Series of Rhododendrons that are in cultivation? I may best make clear what I want by a tabular statement:—

1. Veitch raised from Wilson's seed No. 1778, sent home in 1904, the plant named by Hemsley, R. PRIMULINUM (see GARD. CHRON.3, XLVII. (1910), 4 and 229, fig. 101).

2. Before this name had been long in circulation, Hemsley and Wilson, in the Kew Bulletin (1910, p. 117), sank Hemsley's name R. PRIMULINUM in R. FLAVIDUM, Franchet. This original Wilsonian plant is therefore met with in cultivation under both names.

3. Wilson, in his first Arnold Arboretum Expedition in 1908, obtained seeds of what he considered the same plant, and it was distributed under No. 1202. Is this plant in general cultivation?

4. We have a plant of this No. 1202 raised from Wilson's seed. It has not yet flowered. It is named R. FLAVIDUM on the authority of the PLANTÆ WILSONIANÆ but it is a very different plant from Wilson's 1778. An obvious structural difference is visible on the under side of the leaf. The scales of W. 1778 are of one colour and all far apart, in W. 1202 the scales are of two colours and are close together.

5. What I want to request is that those who grow plants under Wilson's Nos. 1778 and 1202, or under the names R. FLAVIDUM and R. PRIMULINUM, would examine them and see whether all the plants they have are the same in character of foliage. If the plant has flower or should flower a difference to be looked for is this:—Wilson's No. 1778 should have a corolla hairy and coated with scales on the outside and it should also have a style more or less hairy. I have ground for thinking that the flowers of No. 1202 will not show any hairs on the outside of the corolla and may have a hairless style.

ISAAC BAYLEY BALFOUR.

ROYAL BOTANIC GARDEN, EDINBURGH,
27th January, 1917.

RHODODENDRONS AT DAWYCK, TWEED-DALE.

Contributed by F. R. S. Balfour.

Dawyck House stands about 750 feet above sea level, in the upper reaches of the Tweed ; the whole range of lofty hills where the Clyde and Tweed take their rise is perhaps the coldest region in the island.

The formation is old silurian and the drainage very free, the soil in which the Rhododendrons are planted is a mixture of leaf-mould and black peaty humus found in the park, but which requires a considerable admixture of river sand to make it workable.

The rainfall varies from 35 to 45 inches, and is remarkably evenly distributed over every month of the year.

The experience of the last two years has only confirmed what I have known for long : that it is vain to attempt to grow successfully at Dawyck any but the hardier species. On several occasions in both winters there were 34 degrees of frost, and the temperature fell to zero as late as on 1st April, 1917.

There are large masses of the older Rhododendron hybrids, also R. maximum, pure or nearly so, planted many years ago. Recent plantings have been made in a sheltered, wooded glen in the form of separate collections of the species of different regions.

European as well as North American (excepting R. carolinianum) and Caucasian species flower abundantly, none better than R. californicum among the American, and R. Smirnowi among the Caucasian species. The rare Western American R. albiflorum (Hooker) flowered particularly well this year and set seed.

The Chinese species, with the exception of a few good-sized plants from Wilson's earlier expeditions, were all grown from seed collected by him in his last two expeditions undertaken for the Arnold Arboretum. Of these I lost the following during the last two years :—

R. Augustinii, R. Delavayi, R. floribundum, R. Hunnewellianum, R. hypoglaucum, R. intricatum, R. irroratum, R. lutescens, R. neriiflorum, R. Watsonii.

While the following suffered more or less :—

R. argyrophyllum, R. argyrophyllum var. cupulare, R. chartophyllum, R. lacteum, R. micranthum, R. polylepis, R. taliense, R. villosum, R. yunnanense.

And those that came through without damage were :—

R. AMBIGUUM, R. AMESIÆ, R. CALOPHYTUM, R. CONCINNUM, R. DAVIDII, R. DAVIDSONIANUM, R. DECORUM, R. DISCOLOR, R. FLAVIDUM, R. HANCEANUM, R. MOUPINENSE, R. OREODOXA, R. RUBIGINOSUM, R. SEARSIÆ, R. SINENSE, R. SHELTONÆ, R. SOULIEI, R. STRIGILLOSUM, R. SUTCHUENENSE, R. WELDIANUM, R. WILTONII, R. YANTHINUM.

Of the older Himalayan Rhododendrons :—

R. CINNABARINUM, R. BARBATUM, R. CAMPYLOCARPUM, R. CAMPANULATUM, R. THOMSONII, and a hybrid produced many years ago by Cunningham & Fraser, of which R. THOMSONII is the dominant parent, have proved perfectly hardy, while R. FALCONERI, R. NIVEUM, R. CILIATUM, R. ARBOREUM var. CAMPBELLIÆ, R. GLAUCUM, all suffered to some extent, but R. ARGENTEUM and R. KEYSII were killed outright, as was only to be expected. Contrary to my expectations, however, R. HODGSONII seems to be as hardy at Dawyck, even in its early stages, as any Rhododendron we have.

The Japanese and Korean species do not find our climate to their liking, and there were more casualties than survivors among the following species from those regions :—

R. ALBRECHTII, R. DILATATUM, R. KÆMPFERI, R. LEDIFOLIUM, R. METTERNICHII, R. SCHLIPPENBACHII.

I have a considerable number of wild lifted American Azaleas which have been established for several years and all flower freely :—

R. ARBORESCENS, R. CALENDULACEUM, R. CANESCENS, R. NUDIFLORUM, R. VASEYI, R. VISCOSUM, but all these are surpassed by R. OCCIDENTALE which never fails to make a fine show of blossom.

It may not be out of place to add in conclusion that no ericaceous plants seem to be better suited to the severities of our climate than the genus Enkianthus, of which I have several species, including large plants of E. campanulatus, which are never injured by early or late frosts and flower abundantly every year.

F. R. S. BALFOUR.

17*th December*, 1917.

RHODODENDRONS AT BORDE HILL.

CONTRIBUTED BY LIEUT.-COLONEL STEPHENSON R. CLARKE, C.B.

If a garden be like a nation, happy when it has no history, my garden has passed a year of good fortune, for I find it very difficult to recollect anything that appears to me to be of especial interest. I had my anxieties during the great frost of the early months, but they proved groundless, at least there are no deaths to record. Rhododendrons OXYPHYLLUM and SUBLANCEOLATUM were severely cut, as also were to a lesser extent BULLATUM and the Chinese form of MADDENII. After the great frost broke I am told that at many places trouble from frost did not again occur, but that was not so here ; R. MOUPINENSE was the first Rhododendron to open its buds, but it only lasted in bloom for two or three days before a frost destroyed the flowers entirely ; its successor R. DAURICUM met with the same fate, R. LUTESCENS was ready to follow, but most of its buds were destroyed before they opened.

Most Rhododendrons were late in flowering. I was away from home for a few days in the spring, and when I returned on the 7th April, BARBATUM, FULGENS and STRIGILLOSUM were the only ones in flower. The only mischievous frosts that I recollect after this were one on the 13th or 14th June, and another early in October, the former disfigured a few leaves on FALCONERI, and the latter again cut Chinese MADDENII and BULLATUM, the unripened points of the young growths suffering. I was interested to find that Indian forms of MADDENII and EDGEWORTHII were neither injured by this early frost nor by the great frost of the winter, at the same time I do not feel able to draw any comparison between the respective hardiness of the plants as the Indian MADDENII and EDGEWORTHII are considerably older plants and had better shelter.

I have often wondered at the remarkable power possessed by R. HODGSONII of curling round the edges of the leaves towards their midribs during a dry frost, but last year although it certainly did marvels and quite kept up its reputation for looking miserable in cold weather, it was surpassed in its winter sport of curling by both CALOPHYTUM and STRIGILLOSUM. During the frost which now grips us HODGSONII has been unable to roll up its leaves at all, as the first cold day brought a heavy fall of wet snow which adhering to the leaves and freezing on them formed " splints " which compelled them to preserve their shape.

I find my plants of R. INTRICATUM have improved greatly since I caused the lateral growths to be layered annually, while leaving them after rooting attached to the parent plant.

The season has proved to be an excellent one for the production of flower buds, especially on the large-leaved Himalayan species.

STEPHENSON R. CLARKE.

December, 1917.

SHADE TREES FOR RHODODENDRONS.

Contributed by Charles Eley.

The question as to what trees are the most desirable neighbours for Rhododendrons is obviously one which is of the first importance to planters.

The writer has during the last two years obtained the opinions of several people whose experience is valued and has tried to express them in the form of a Note, in the hope that, in future numbers, other Members will be tempted to add their experiences and observations. The subject grows in scope the more closely it is examined and opens a far larger field for examination and controversy than it is possible to cover in a Note such as this. It is not intended to discuss the question of *sheltering* the plants from wind ; but only to consider what trees it is best to use to give the plants that protection from the sun which experience has proved to be desirable in this climate.

The subject divides naturally into two main points : firstly, the density of the shade and secondly, the effect of the selected trees upon the surrounding soil.

Upon the second of these points an immense amount might be written, as within it, is wrapped up the perplexing question of the natural regeneration of Rhododendrons and so necessarily involves also methods by which they can best be artificially raised from seed.

And if, as I believe has been asserted on high authority, the seedlings under natural conditions pass the early stages of their career under some form of symbiosis, it is obvious that the trees best suited to shade and assist both the plants *and* their seedlings are a matter for careful consideration.

But further exploration of this particular thicket of controversy must be left for another occasion.

The replies received show remarkable diversity of opinion, and the writer has confined himself to mentioning only those trees regarding which some unanimity is shown.

All are agreed that the common oak is best, also that the slowness of its growth practically puts it out of court from the planter's point of view.

Several correspondents agree with the writer that the best tree from the planter's point of view is Quercus Cerris, not only on account of the rapidity of its growth and the diffuse quality of its shade but also because it is observed that Rhododendrons thrive in its proximity.

In India it is noted that Quercus incana is the tree which is most frequently found growing in company with Rhododendrons, and similarly in America the majority of the Azalea species are reported to thrive best in open oak woods.

Is the suitability of the oak due to any possibility that it does not draw its moisture from around its perimeter as in the case of most other trees, or that its

leaf, its acorns or its roots produce soil conditions especially favourable to Rhododendrons ?

And it would seem possible that the entire genus Quercus shares in this peculiarity, and probably all the small-leaved varieties particularly so.

Some varieties of Quercus sessiliflora are reported to grow more quickly than Quercus pedunculata, and also to thrive better on poor soil. This, however, is not my experience here. Some hundreds of Q. sessiliflora have been planted in different places, some of which were raised from Norwegian seed, vouched for by the late Mr. W. R. Fisher. The result in all cases is that they have shown a marked inferiority to the common pedunculate oak of this locality as regards the vigour of their growth.

Opinions are equally unanimous in condemning Ash, Elm, Beech, Sycamore, Poplar, and to these the writer would add the Lime. The dense shade produced by the beech cannot be mitigated, but, equally, the enormous value of the beech leaf mould produced cannot be overlooked, and one correspondent states that he has made a practice of curbing its soil-robbing propensities by driving a trench through its roots.

The whole question is extremely far reaching, because there is little doubt that leaf mould as well as soil has much to do with the success of Rhododendrons, and incidentally with the diseases.

The sweet chestnut is almost universally condemned, as being both too greedy and too dense.

Mr. William Watson, on page 56 of his book, "Rhododendrons and Azaleas,"* says that " soils on which Spanish Chestnut, Birch, Conifers, particularly Pinus Pinaster, thrive, are not unlikely to suit Rhododendrons."

It would seem likely that both the Spanish Chestnut, always difficult to place with any certainty that it will thrive except in actual places which it is known to favour, and Pinus Pinaster demand from the soil just those very qualities which are required by the Rhododendron, and this criticism should possibly be extended to the others.

Opinion regarding the large maples seems curiously uncertain, but one authority writes that acer rubrum is a greedy tree, and that he fears acer dasycarpum is not much better. Generally speaking large-leaved varieties must be bad, since they demand moisture, and conversely the small varieties of the maples would probably be desirable where height is not required.

The question of small leaves suggests the birch, favoured by the writer in spite of its surface-rooting habits ; and certainly the prospect of a group of betula ermani arising like fountains of coffee cream from the midst of broad-leaved Rhododendrons or a carpet of INTRICATUMS is a vision tempting enough to induce anyone to give it a trial.

The cherries would seem suitable, especially Prunus serrulata, Prunus Avium fl. pl. and Padus Watereri, but this group is very liable to disfigurement from

* "Present-Day Gardening Series," pub. T. C. & E. C. Jack, London.

caterpillars and other pests, which would very possibly attack the young growth of the Rhododendrons beneath.

Several correspondents include the Laburnum, but without giving any special reason for the recommendation. It certainly possesses one disadvantage in that it constitutes a favourite food of the rabbit.

Populus alba *var.* pyramidalis (P. Bolleana, *Carrière.*) and Populus nigra, *var.* italica (Lombardy Poplar) can be in some places used with advantage to shut off the slanting rays of the rising or setting sun. Their close rooting habit make these two the less liable to rob the soil than the other common varieties.

Of conifers, Picea Omorika and Tsuga Albertiana are not easy to beat, the former especially, on account of its fastigiate habit making it economical in the matter of room.

The writer is sadly aware of the negative character of most of the foregoing Note, but trusts that it is at least provocative !

It is hoped that it may lead to an investigation of the whole subject in the near future. It is not too much to predict that the incoming flood of Rhododendrons from China will ultimately cause a revolution in English gardens, fully as great as did the arrival of new conifers in the middle of last century ; and the War may hasten rather than retard this change.

In this event, the provision of suitable shade trees will become more and more important as the new species get into cultivation.

CHARLES ELEY.

December, 1917.

The Rhododendron Society Notes.

RHODODENDRONS AT KILMACURRAGH.

CONTRIBUTED BY THE RT. HON. THE MARQUESS OF HEADFORT.

Owing to the War I regret my notes must of necessity be curtailed, but perhaps a short description of my visit last May to Kilmacurragh will be of interest.

There exists at Kilmacurragh, Co. Wicklow, a very fine collection of most of the half-hardy shrubs and trees that were introduced about the middle and towards the end of last century, and I suppose some of the biggest specimens in the United Kingdom of Rhododendrons which were introduced during the time of the late Sir J. Hooker, amongst these the best specimens are :—

R. FALCONERI, R. EXIMEUM, R. SHEPHERDII, R. BARBATUM, R. LANATUM, R. CAMPYLOCARPUM, R. KEYSII, R. TRIFLORUM, R. CAMPBELLII, R. NIVEUM, R. ARBOREUM (Crimson form), R. ARGENTEUM, R. HODGSONII.

Nearly all these have grown to a great size, for instance :—

R. FALCONERI 25 ft. by 20 ft. ; R. EXIMEUM, 15 ft. by 12 ft. ; R. BARBATUM, 15 ft. high ; R. CAMPBELLII, 20 ft. high ; R. ARBOREUM (Crimson form), 25 ft. to 30 ft. high.

Other plants which have thrived in this very favourable climate and soil are :—

Libocedrus tetragona, 15 ft. high ; eucalyptus gunnii, 35 ft. high ; Tricuspidaria lanceolata, 25 ft. high ; Ilex Perado, 25 ft. high ; Pieris formosa, 15 ft. high ; Podocarpus nubigena, 25 ft. high ; Drimys Winteri, 35 ft. high ; Magnolia Campbellii, 30 ft. high ; Philadelphus mexicanus.

For specimens of Conifers I suppose the Abies grandis was one of, if not the finest in Ireland, and which, alas, was blown down in the northerly gale last December. The height this tree had attained was about 100 feet, the girth at the butt was fully 18 feet.

There is a magnificent specimen of Tsuga Albertiana at least 110 feet, and the three species of Athrotaxis are about the finest specimens, I suppose, in the United Kingdom ; Embothrium coccineum, measuring about 60 feet through, is about 30 to 40 feet high.

I hope next year to give a fuller description of this exceedingly interesting collection.

HEADFORT.

March 2nd, 1918.

RHODODENDRONS AT PENLLERGAER, SWANSEA.

CONTRIBUTED BY SIR JOHN LLEWELLYN, BART.

From the middle of January to the middle of February, 1917, the weather in South Wales was exceptionally severe, and during most of that time the easterly wind blew a blizzard, with much snow and frost, which attained a maximum of twenty-eight degrees early in February.

Many conifers were scorched quite brown on the eastern side, many semi-hardy or tender shrubs such as veronicas, myrtles and some bamboos were killed or severely injured, but the Rhododendrons and Azaleas came through the winter far better than I expected.

The foliage of some of the more exposed plants was torn off by the violence of the wind, but the actual injury by frost to the plants was certainly less than was the case in November, 1893, when the sap and young wood was less matured than it was in January, 1917.

My plants of RHODODENDRON GRANDE have suffered, though I think they will recover, while such species as BARBATUM, THOMSONII, OCHRACEUM, CAMPANULATUM, GRIFFITHIANUM, ROYLEI, CAMPYLOCARPUM, FALCONERI, HODGSONII and CINNABARINUM are uninjured and most of them are showing a very fair average of bloom for 1918.

No Azalea seems to be any the worse, still I cannot help hoping we may not be subjected to so sharp a test again in this coming spring.

JOHN D. LLEWELLYN.

14th December, 1917.

EFFECT OF THE WINTER OF 1916–1917 ON RHODODENDRONS AT LEONARDSLEE.

Contributed by Sir Edmund Loder, Bart.

On the whole it may be said that the bulk of the Rhododendrons came through the trying time very well.

R. BULLATUM was killed; also a plant of R. FORDII; but another plant of the same species was hardly touched.

The largest and oldest plant of blood red ARBOREUM was quite uninjured, but other varieties, KERMESINUM, etc., were badly scorched and cut about, but they have recovered well.

R. LINEARIFOLIUM, R. SUBLANCEOLATUM and R. MUCRONULATUM were cut back but are breaking again.

A hybrid raised here between R. CILIATUM and R. EDGEWORTHII was also injured in some degree.

Several varieties of R. INDICUM (greenhouse Azaleas) came through with very little damage.

R. GRIFFITHIANUM (AUCKLANDII) was uninjured both as to leaf and flowers; but the flower buds of R. CALOPHYLLUM were frozen through and destroyed although the plant itself was unhurt.

The buds of R. CALOPHYLLUM are destroyed by frost nearly every winter; it is very seldom that we get any display of its flowers here.

R. FORMOSUM (R. GIBSONII) is much the same; the flower buds are nearly always killed by frost, but this year the plant itself was also injured.

R. NERIIFOLIUM was not hurt at all, R. DELAVAYI, R. CAMELLIÆFLORUM and R. SPINULIFERUM (under a wall) are scarcely touched.

Some of the leaves of the large foliage species, R. FALCONERI, R. GRANDE, R. HODGSONII, etc., are deformed or curled at the tips. I put this down to their being frozen in the bud.

EDMUND GILES LODER.

November, 1917.

LIST OF PUBLISHED PORTRAITS OF SIR JOSEPH HOOKER, O.M., G.C.S.I., C.B.

By the kindness of Dr. B. Daydon Jackson, I am able to send the following list of portraits of Sir Joseph Hooker, which he has compiled. It includes busts and medallions, also photographs which have been reproduced. I am sure the Members of the Society will feel much indebted to Dr. Jackson for this interesting list.

GERALD W. E. LODER.

1851.

*1. T. Q. L., seated, vignette; drawn and lithographed by T. H. Maguire (Ipswich Series).

1852.

*2. Picture in the Himalaya of Natives bringing in plants, painted by Frank Stone, A.R.A.; in possession of Major Joseph Symonds Hooker. Engraved by William Walker. Reduced woodcut in The Leisure Hour, August 1st, 1868.

1855.

3. Head and shoulders; chalk drawing by George Richmond, in possession of Charles Paget Hooker, Esq. Lithographed by Dennis Moss; reduced photogravure in Proc. Royal Soc. B., LXXXV. (1912), p. 11.

1868.

4. Head to right; from photograph by Mrs. Julia Mangouet Cameron, half-tone reproduction in Proc. Linn. Soc., 1911–12, front; reprinted in Oliver's Makers of British Botany, pl. 26, p. 302; photogravure in Proc. Royal Soc. B., LXXV. (1912), p. 23.

5. Head to left; woodcut from photogravure by H. T. Whitlock, Birmingham, in The Leisure Hour, August 1st, 1868, p. 521.

1870.

6. Head to left; photographed by G. C. Wallich for his Eminent Men of the Day, pl. 6. Woodcut in Harper's Magazine, LXIX., 1884, p. 833, and Harper's Weekly, XXVIII., 1884, p. 555; half-tone block in Darwin and Seward's More Letters of Charles Darwin, I. 316.

1874.

7. Head to right; drawn and engrossed by W. G. Smith, published in The Graphic, January 3rd, 1874, p. 8.

* See also Rhod. Soc. Notes, Vol. I., p. 21.

1877.

*8. Head to right ; from a photograph, engraved in stipple by C. H. Jeens, published in NATURE, October 25th, 1877, with notice by Asa Gray, pp. 537–539. (Scientific Worthies, No. XI.)

1881.

9. Head and bust to right ; painted by the Hon. John Collier, in possession of the Royal Society.

1886.

*10. H. L., seated at table, with microscope ; drawn for THE GRAPHIC by T. B. Wirgman, in 1886. Original pen-and-ink drawing now at Kew.

1890.

*11. T. Q. L., seated ; painted by Sir H. von Herkomer, R.A., in possession of the Linnean Society. A replica in possession of Lady Hooker. Collotype reproduction by Annan & Swan. 12in. by 10in., half-tone 8in. by $6\frac{3}{4}$in., Supplement to THE GARDENERS' CHRONICLE, Ser. III., XXXVII. (1905), p. 8, and reprinted in Ser. III., I. (1911), p. 436.

1895.

12. T. Q. L., seated ; photogravure in MORE LETTERS OF CHARLES DARWIN, II., p. 242, from a photograph by W. J. Hawker, of Wimbourne. Head enlarged, from original negative lent by Lady Hooker, DARWIN-WALLACE CELEBRATION REPORT, 1908, pl. 5.

1897.

*13. T. Q. L., seated ; photogravure, published by Walker & Cockerell.

14. In uniform, in J. Mayall's photograph of the Royal Society's Diamond Jubilee Deputation to Windsor, 15th July, 1897, published by the Royal Society.

1898.

15. Head to left, profile ; bronze medallion, original model by Frank Bowcher for obverse of Hooker Medal ; in possession of the Linnean Society of London ; cf. half-tone in PROC. LINN. SOC., 1897–8, p. 61.

1908.

16. Photograph in THE GARDENER, 26th September, 1908, republished 23rd September, 1911.

1910.

17. T. Q. L., standing ; photographed by J. Russell & Son, photogravure in PROC. ROYAL SOC., B., LXXXV., p. 1.

18. Photogravure of Sir Joseph and Lady Hooker, from photograph by J. Russell & Son, as a New Year Card, 1911 ; collotype frontispiece in BOWER, "AN ORATION," Glasgow, 1912.

* See also RHOD. SOC. NOTES, Vol. I., p. 21.

1911.

19. Marble bust, modelled from life in 1911, by Pennachini, and presented by Lady Hooker in 1913, to the Royal Botanic Gardens ; placed in No. 1 Museum.

1912.

20. Head and bust ; half-tone, in KEW BULLETIN, 1912, as frontispiece, from photograph by Elliott & Fry, Ltd.

1913.

21. Medallion in Kew Church, by Frank Bowcher, in Wedgewood cameoware, the centre of a memorial erected by Lady Hooker ; see THE GARDENERS' CHRONICLE, 15th March, 1913, p. 171.

1915.

22. Medallion by Frank Bowcher, in Westminster Abbey.

The Rhododendron Society Notes.

LAMELLEN GARDEN, 1917.

Contributed by E. J. P. Magor.

The hard winter did a certain amount of damage in this garden, and several plants of the following species were killed: STENAULUM, NEMATOCALYX, EDGEWORTHII, MADDENII, BULLATUM and CRASSUM; whilst among the injured, but surviving, were plants of all the above, and BOOTHII, DALHOUSIÆ, KINGIANUM, ZEYLANICUM, "LADY ALICE FITZWILLIAM," "COUNTESS OF HADDINGTON," and VIRGATUM.

The OXYPHYLLUM section, represented by STENAULUM and NEMATOCALYX, appears to be almost hopeless here, whilst BULLATUM and CRASSUM do not seem much hardier than their Himalayan representatives, EDGEWORTHII and MADDENII.

Rabbits again have attacked several species in addition to those I mentioned last year; such as CHARTOPHYLLUM PRÆCOX, CINNABARINUM × MADDENII, PROSTRATUM, BRACHYANTHUM, ZALUCUM, MACROCEPHALUM, INDICUM *var.* MACROSTEMON, and AUGUSTINII. Plants of AUGUSTINII with stems as thick as an ordinary pencil being bitten off short, and a batch of seedlings of CHARTOPHYLLUM PRÆCOX over 1½ feet high being in some cases eaten to ground level.

But the three best plants of PROSTRATUM suffered most, although inside wire-netting; for a half-grown rabbit devoted himself to these, and ate almost every leaf on them in two nights, leaving untouched FASTIGIATUM, FLAVIDUM, HIPPOPHÆOIDES, etc., which were all round them; when with the help of my wife's Pekinese—our only surviving dog—I succeeded in shooting him. About this PROSTRATUM there seems to be something particularly tasty, for, besides rabbits, it is eagerly devoured by small green caterpillars, which, by the way, seem fond of many Rhododendron seedlings in their first stages. Whilst on the subject of caterpillars, I have noticed two more enjoying the foliage of Rhododendrons: one a very beautiful creature, green with black between two of the segments and tufts of pale yellow hair on its back. This I believe turns into the pale Tussock Moth (Orgygia pudibunda), and has been very numerous this year. The other is a much worse pest, an ugly olive or yellowish-brown animal, which is perhaps the caterpillar of the large yellow-underwing moth (Tryphœna pronuba). It feeds entirely at night, and will make great havoc in a bed of seedlings. I well remember my first encounter with one of these three or four years ago. I had noticed in one of my frames that a seedling was disappearing every night, and tried to catch the offender at various times as late as midnight and as early as 5 a.m. without success. At last, going up about 2.30 a.m., I found a new plant attacked and a leaf half underground, and digging round with a large pruning knife found my friend on the end of it, and the depredations ceased.

Two supposed varieties of AZALEA INDICA, sent home by Forrest, bloomed for the first time; one a straggling plant with very pale rose flowers, three in a

truss, about an inch and a half across and with very deeply cleft segments ; the other much more compact and of a rather fastigiate habit, with flowers in threes in the axils of the leaves all the way up the stem, after the fashion of R. RACEMOSUM. The flowers were pink spotted, and about three-quarters of an inch across. Forrest's note on the seed packet was "RHODODENDRON RACEMOSUM FORMA ? Plant of 5-feet, Chutong Hills;" but it certainly is not RACEMOSUM, and is probably a new species.

Among other Rhododendrons flowering here for the first time were the following :—R. CILIATUM × KEISKEI (one flower before), flower white tinged with pink on the outside, about 2 inches across and something like CILIATUM, but the habit of the plant shows the influence of KEISKEI very plainly, being quite prostrate. A charming plant for the rock garden, but unfortunately I have only raised three plants of it. R. 9048F HABROTRICHUM, had one flower in a cold frame, which opened about April 22nd, 16 to 18 flowers in the truss, blush-white with a blotch of crimson at the base inside the three upper segments. Five lobed, campanulate $1\frac{3}{4} \times 2$ inches on hirsute pedicels about $1\frac{1}{4}$ inches long.

R. AMBIGUUM × KEYSII. Several plants of this cross flowered all extraordinarily like the pollen parent, but rather wider in the mouth and some weeks earlier. Rather a curiosity than an acquisition.

R. 5530F STENAULUM also flowered from seed sown in 1911. The plant was in a cold frame, those in the open having been killed or cut to the ground by frost. The flower was about $2\frac{1}{2}$ inches across, white with a large blotch of orange-yellow on the upper segment, and from memory I should say that it was very like the flower of R. STAMINEUM. I wish I were sufficiently a botanist to describe the flower buds, which were quite unlike those of an ordinary Rhododendron. They were at the extremity of the branch in the axils of the topmost three or four leaves and were larger and more pointed than the leaf buds. The same phenomenon has appeared on my plant of R. CHAMPIONÆ, and I am curious to see whether flowers will be produced in this case also.

About the next I am a little diffident. It is supposed to be AUGUSTINII × BULLATUM, but there is very little trace of BULLATUM except that it is distinctly sweet-scented, and the flowers have rather more substance than in AUGUSTINII. Also the leaves are larger and more hairy, and there is hair on the young stems.

R. 6777F BRACHYANTHUM is a very dainty little plant, with smallish leaves, dark green above and very glaucous beneath, rather reminding one of those of R. GLAUCUM, but the flowers are yellow, unspotted, in a loose truss of five or six, and each flower gives the impression of neatness. Several seedlings of R. 12623F HIPPOPHÆOIDES flowered. This is a small-leaved high Alpine, and has little trusses of six to nine flowers, lavender-blue in colour, but there is considerable difference in their shade and one of them was exceedingly beautiful, more of a clear porcelain-blue and with a longer stalk to the truss, whereby the flowers were better displayed. So far it has more or less the habit of R. FLAVIDUM.

R. 5866F CEPHALANTHOIDES flowered in August ; a very dwarf compact plant, but has small mean white flowers on the lines of R. ANTHOPOGON. It is, however, possible that the spring blooms will be better.

R. SALIGNUM (LEPIDOTUM *var.* CHLORANTHUM, *Hook. fil.*) had one flower, and is hardly as attractive as Hooker's plate makes it, being a rather dull yellow with brown spots, instead of white with green ones.

R. 885W HOULSTONII (?) or DISCOLOR (?) flowered for the second time—the first being in 1912—opening on July 8th, when almost everything else was over ; six to nine flowers on a truss, seven lobed, two by three inches, blush-white with pink buds ; pinker on the outside, and with a large blotch of crimson in the interior, shading off all round to yellow and then to blush, and slightly scented. In another plant the flowers were pinker and the crimson blotch less pronounced. On Rhododendron No. 104, CAUCASICUM STRAMINEUM × CAMPYLOCARPUM developed an imperfect flower in August. It is a good yellow with red spots and the plant has an excellent habit. It developed a good pod of seed to R. ADENOGYNUM.

In October, a rogue very near to R. TRICHOCLADUM flowered. It has smaller leaves and small yellow flowers, three or four in a truss, about an inch across. Professor Balfour tells me that it is R. XANTHINUM.

Also in October, R. 6780F NERIIFLORUM produced a beautiful flower. It is a small growing plant with a loose truss of twelve flowers, 2 by $1\frac{3}{4}$ inch, unspotted, with a rather narrow tube opening out at the mouth, and of the same colour as the lighter varieties of R. THOMSONII. The calyx is the same shade as the corolla and the flower rather waxy. It should be a good plant with which to hybridise, and bring purity of colour into some of the hardy hybrids.

I do not know whether a list of the plants flowering in the later months of the year is of any interest, but such as they are here it is, though it must be understood that they were often isolated flowers and by no means so good as those produced in the Spring.

August. INTRICATUM ; 12623F (HIPPOPHÆOIDES ?) ; ANTHOPOGON ; KEYSII ; "GOVENIANUM" ; RETUSUM (indoors) ; ADENOGYNUM—some plants pinker than others ; CEPHALANTHOIDES ; 10035F (SCINTILLANS) ; and CAUCASICUM STRAMINEUM × CAMPYLOCARPUM.

September. 5865F (RUPICOLUM) ; FLAVIDUM ; and forms of FASTIGIATUM.

October. TRICHOCLADUM ; OREOTREPHES ; NERIIFLORUM ; OREODOXA ; LEPIDOTUM ; XANTHINUM.

November. OREOTREPHES, FASTIGIATUM and PARVIFOLIUM.

December. PARVIFOLIUM, DAURICUM and MUCRONULATUM.

With regard to seedling hybrids :—

In the LEPIDOTUM × BOOTHII lot, from seed sown in 1916, the pollen parent has come through strongly, and the leaf is very distinct, contrasting with a few plants of apparently pure LEPIDOTUM, which are among the seedlings. R. GLAUCUM × BOOTHII, of which there are but two plants, sown in 1915, are also very distinct, and came through last winter's frost in the open undamaged. So also did AUCKLANDII × BULLATUM, and here again there are but two plants about one foot high, from seed sown in 1903. R. "MRS. BUTLER" × AUGUSTINII

is another cross poorly represented in point of numbers, but in which the influence of the latter is clearly visible; yet this seems to have an indifferent constitution and may prove worthless. The old plant of R. HOOKERII, badly broken by the falling elm in 1915, has at last succumbed to its injuries, and I should be grateful if any member of the Society could tell me of a nurseryman who stocks it, for it is a beautiful thing, which I should like to replace.

Commander Millais in his most interesting book mentions a supposed cross between R. TRIFLORUM and AUGUSTINII—unlike either parent—in the garden at Trewithen, I fear on my authority. I saw the two or three plants of it again the other day, and am convinced that there is a mistake in the record of the cross, and that it is really one between MADDENII and CINNABARINUM.

E. J. P. MAGOR.

18*th December*, 1917.

The Rhododendron Society Notes.

RHODODENDRONS AT LOGAN, WIGTOWNSHIRE.

CONTRIBUTED BY KENNETH McDOUALL.

To go back many years, Rhododendron " ALTACLARENSE " was planted here in considerable quantity about 1860, so the plants are about 60 years old. They now form very large specimens and have mostly been planted in groups. Branching from the ground into several trunks, many are now over 25 feet in height, still growing upwards, covered with magnificent foliage, and in April and May they always flower well. At that time of year they make a wonderful show. The flowers on the different plants vary somewhat, the best form having a well-shaped truss and large individual flowers of a good crimson red ; others are not so nice in colour having a pink or purple tone which gives a less pleasing effect ; others again have a small truss and open later. The measurements of some of these plants may be of interest. One, standing alone, has a single trunk with a girth of four feet measured two feet from the ground, it then branches into three large stems ; its height is 18 feet, and it has a circumference of 102 feet round the bush. Another reaches 28 feet in height, and has four trunks, the largest of which has a girth of three feet measured three feet from the ground. The tallest is 30 feet in height, and has five trunks, the largest with a girth of two feet six inches measured six feet from the ground. These Rhododendrons seldom blow down or break with the wind, but when they reach a very large size they sometimes fall, breaking off at the base of the trunk quite suddenly and without any apparent cause, for when this does occur, it takes place in calm weather in the early spring. I lost a fine plant of R. " ALTACLARENSE " some years ago in this way, and the only one of its colour, which was a dark plum-red. Since then, others have fallen in a like manner. Is it that the wood becomes brittle when the sap begins to run, or that a sudden change of temperature brings about this result ? I have known yuccas to fall in the same way when they reach a large size. R. " ALTACLARENSE," as it grows here, is of rapid growth and is certainly a splendid Rhododendron for grouping. It should be given plenty of room, for, when mature, it is a huge plant, almost a tree, and then when in flower nothing can exceed its beauty.

The cold of the past winter had no ill effect on my young Indian or Chinese Rhododendrons ; its continuance into the spring made the flowering period later than usual ; however, the buds opened to perfection, and the flowers appeared to be more intense in colour than usual.

Among those of special note R. AUGUSTINII held its own. I notice a great variation in this species, " Wilson Seed," those of a pure bright lilac, without any hint of pink, are the best ; some flowers have no spots, others are dotted with green or brown inside ; one plant produced flowers of a dark lavender, and the foliage of this one is also dark. The flowers were produced in quantity on all these plants.

R. HOOKERII opened its fine blood-red flowers, but has not set seed. R. EDGEWORTHII and R. " FRAGRANTISSIMUM " also flowered well.

1*st January*, 1918. KENNETH McDOUALL.

The Rhododendron Society Notes.

INSECT ENEMIES OF RHODODENDRONS.

CONTRIBUTED BY THE RT. HON. SIR HERBERT MAXWELL, BART.

Hitherto one of the cardinal merits of the genus Rhododendron has been reckoned its comparative immunity from insect enemies ; but during the summer of 1917 I have noted two or three remarkable exceptions to previous experience.

The classification of some of the Microlepidoptera is still unsettled, owing to the extreme difficulty of dealing with many hundred species of minute moths ; but one is painfully familiar with the ravages of the larvæ of a species of the Torticidæ, whereby the oaks in the southern counties of England are so often stripped of their foliage in early summer. Such was the case in 1917, many woodlands in Sussex and Bucks being sadly disfigured by this pest. Nothing new in that ; but the serious matter I have to report is that in two places, in Mr. Gerald Loder's beautiful park at Wakehurst Place in Sussex, and in Mr. Yorke's picturesque wild garden near Iver Heath in Bucks, the moths, having polished off the oaks, proceeded to attack the young growths on Indian Rhododendrons. I ought to add that, not having seen the caterpillars at their evil work, only the results of their voracity, I cannot affirm positively that they were the offspring of the oak Tortrix ; but the fact that the Rhododendrons which suffered were growing among defoliated oaks suggested that the damage was wrought by a common agency. It will be well if a strict watch be kept in future, so that the actual assailant of these Rhododendrons may be identified. Whatever it is proved to, be the oak Tortrix or some other enemy, it can probably be conquered by spraying, which of course is impracticable upon forest trees.

In the north and west our oaks seldom suffer from the ravages of Tortrix. Only once, about twenty years ago, have I seen the oak woods on Loch Lomond side laid bare in June. The prevailing oak there and in the west generally is the sessile-flowered species or variety (Quercus sessiliflora), whereas in the districts in which Tortrix usually swarms it is the pedunculate oak (Q. pedunculata). The Hon. Gerald Lascelles, late Deputy Surveyor of the New Forest, has borne striking testimony to the immunity of the former species from attack by the moth—the few sessile oaks which had been planted in the Forest standing green and luxuriant after thousands of indigenous pedunculate oaks had been stripped.

Nevertheless, a new enemy made its appearance in 1917, at Castle Kennedy, Wigtownshire. The Hon. Hew Dalrymple, M.P., tells me that bushes of Rhododendron NIVEUM, 15 to 18 feet high, were infested by numbers of a large caterpillar which had stripped most of the foliage before they were detected. He had them picked off and destroyed, most unfortunately without taking any measures to identify the species. He could only tell me that they were three or four inches long, of a prevailing green colour, with stripes on the sides. He did not notice whether they had the curved horn on the eleventh segment of the body—the invariable badge of the clan Spinx ; but I strongly suspect they were larvæ of the convolvulus hawk-moth (Sphinx convolvuli), which appeared in extraordinary numbers in all parts of Great Britain in the summer of 1917. If that be so, Rhododendron lovers need be under no apprehension, for this fine insect only abounds at rare intervals in these islands.

HERBERT MAXWELL.

November, 1917.

The Rhododendron Society Notes.

RHODODENDRONS AT MONREITH.

CONTRIBUTED BY THE RT. HON. SIR HERBERT MAXWELL, BART.

The spring of 1917 was unusually favourable for Rhododendrons, owing to the total absence of late frost. It is true that the weather continued very severe from Christmas until 12th April, except a mild spell for a fortnight at the end of February and beginning of March, and that the bloom of R. BARBATUM, PARVIFOLIUM, "PRÆCOX" and "NOBLEANUM," brought forward thereby, was destroyed; but the severity prevented the others starting in growth till they were safe. R. ARBOREUM, for instance, which usually begins to flower early in March, and often suffers disfigurement thereafter, delayed opening its first truss till 21st April, and R. INTRICATUM, which began in 1916 on 28th February, opened its first bloom on 24th April.

The minimum temperature registered during the winter was 15°; but the mercury fell to that point several times and the mean temperature of the first three months and a half was far below normal in this district. No damage was done, except to three plants of R. GRANDE, eleven and nine years planted, of which the growth buds were nearly all killed. None of Wilson's or Forrest's Rhododendrons were injured, some of the smaller plants receiving protection from fir branches stuck round them. The following species flowered here for the first time, R. AMBIGUUM, NERIIFLORUM (flowered again in autumn), AUREUM (Forrest 6767, a poor yellow), and also one of which I have lost the number. It has pink flowers and leaves resembling R. DECORUM, but much smaller. There is a fine promise of blossom for next spring.

HERBERT MAXWELL.

October, 1917.

RHODODENDRONS AT POLLOK HOUSE, RENFREWSHIRE.

Contributed by Sir John Stirling-Maxwell, Bart.

It seems sound that each member should give his experience for what it is worth: otherwise I should not dare to mention this garden. It is in the suburbs of Glasgow, which embrace the place on three sides and render its groves as black as those of Kensington Gardens. Under such conditions the charm of all evergreen plants is impaired, but those of the Rhododendron family thrive better than any others. Their cultivation has been too much neglected in industrial districts. Their leaves have the art of divesting themselves of the inky slime which winter fogs deposit and emerging from a night's rain fresh and lustrous. Even the fine grit brought by easterly breezes in summer—so destructive to most foliage—does not harm them, nor does that invisible scourge the free sulphur in the atmosphere seem to check their development. Mr. Whitton, the Superintendent of the Glasgow Parks, (lucky the city which has such energy and skill at its disposal), cultivates them with success in surroundings which at first sight appear impossible. But he leaves nothing to chance. Knowing how they will need all the vigour he can put into them, he provides them with suitable soil and shelter and thus escapes the failures which have deterred gardeners in other towns from trying any but the commonest kinds.

The soil at Pollok is a good loam over a desperate till: for Rhododendrons it requires the addition of leaf-mould or peat. The climate—apart from the smoke—suits all the hardier kinds, though it cannot compare with that of sheltered spots a few miles farther west and more under the kindly influence of the sea. Up to ten years ago only the commoner hybrids were grown, "Cynthia" and "Lady Eleanor Cathcart" being in this locality about the best. Recently a number of Himalayan and Chinese species have been planted on the lee side of a wooded hill behind the garden, some seventy feet above the river and its frosts. The wood is old and thin, but yews, hollies and tangles of R. ponticum provide the necessary local shelter. R. grande and R. Falconeri both succumbed to the first winter. The latter we are trying again since under Professor Bayley Balfour's care it lives and flowers in Edinburgh. R. cinnabarinum for some reason has never done well. Otherwise there have been few failures.

The following species are now in cultivation and have all come through the last two trying winters and cruel springs. Only those *starred* have yet flowered.

R. arboreum* (several varieties), R. barbatum,* R. campanulatum,* R. Thomsonii,* R. fulgens,* R. Hodgsonii, R. campylocarpum, R. niveum, R. lanatum, R. cinnabarinum, R. Roylei, R. glaucum,* R. lepidotum,* R. caucasium* (pink, white and dwarf yellow), R. Smirnowii,* R. Ungernii, R. Metternichii, R. dauricum,* R. catawbiense,* R. californicum, R. maximum,* R. carolinianum,* R. punctatum,* R. calophytum, R. decorum,*

R. DISCOLOR (three varieties with green, pink and violet leaf stalks), R. SUTCHUENENSE, R. FORTUNEI,* R. LACTEUM, R. FICTOLACTEUM, R. INSIGNE, R. TALIENSE, R. BRACTEATUM, R. LONGESQUAMATUM, R. ADENOGYNUM, R. BRACHYCARPUM, R. AMBIGUUM,* R. CONCINNUM,* R. STRIGILLOSUM,* R. PACHYTRICHUM, R. HÆMATOCHEILON,* R. IRRORATUM, R. HÆMATODES, R. HYPOGLAUCUM, R. FLORIBUNDUM, R. BRETTII, R. YANTHINUM LIPIDANTHUM, R. PRZEWALSKII, R. PRATII, R. COOMBENSE, R. DAVIDSONIANUM, R. MICRANTHUM R. DAVIDII,* R. ARGYROPHYLLUM, R. SOULIEI,* R. RIRIEI, R. YUNNANENSE, R. LUTESCENS,* R. HARROVIANUM,* R. PARVIFOLIUM,* R. RACEMOSUM,* R. MOUPINENSE,* R. INTRICATUM,* and a number of unnamed species from Wilson's and Forrest's seed, for which I am indebted to Professor Bayley Balfour.

A number of the choicer hybrids are also doing well. If seems difficult to get the right sort of R. "NOBLEANUM." All that I have behave like dwarfs, and it is hard to believe they can ever reach the stature of the old plants found in neighbouring gardens, though I can detect no difference in leaf or flower. Those that grow with most vigour at Pollok are of the rose-coloured variety with long twisted leaves, bought under the name of R. "NOBLEANUM VENUSTUM." R. "KEWENSE" grows well, but has not yet flowered. R. "LUSCOMBIANUM" flowers freely. We used its pollen to fertilize a plant of R. EDGEWORTHII in the greenhouse. Most of the seedlings take after the delicate parent, but two have hardier looking leaves. The only other cross I have made is between R. SMIRNOWII and a plant of R. ARBOREUM which happened to flower late after being moved.

The late-flowering Waterer hybrids are grown on each side of a long grass walk in part of the grounds used as a public park. Singly these hybrids are beautiful things, but here too many are in sight at once. The result in June extorts admiration for a few moments till one is overcome by the sense of repletion which seems almost inseparable from these displays—so difficult is it to plant in moderation things so easy and so cheap. The dell at Kew suggests a remedy. Its large group of R. "NOBLEANUM" is one of its happiest features—welcome in mild springs for its solitary splendour, no less welcome in summer as a foil to the later glories. R. "RUSSELLIANUM" may serve the same purpose and that fine old ARBOREUM hybrid which Mr. Millais describes under the same name at Galloway House, though it is certainly not the same thing. Sir Herbert Maxwell calls the latter R. "KNIGHTII." No doubt the time will soon come when hybrids of R. DISCOLOR and R. AURICULATUM will supply further foils for such walks and prolong their beauty into August. But it is difficult to reform what has been begun on wrong lines. Near by there is a sheltered valley where I had hoped to gather the choicer hybrids on a northern slope and avoid this vulgar extravagance. The war put a stop to that project. Some day, perhaps.

J. S. M.

January, 1918.

RHODODENDRON DELAVAYI AT KILMACURRAGH.

Contributed by Sir Frederick W. Moore.

There is at Kilmacurragh, Rathdrum, Co. Wicklow, a remarkable plant of the rare Rhododendron Delavayi. It is 12 feet high, and 13 feet through, and flowers regularly. In habit it resembles some of the red flowered forms of R. arboreum, upright in growth, but with more slender branches, and branched to the ground. The leaves are smaller than those of R. arboreum, a little more lanceolate in shape, and more acute at the apex. They are silvery-white underneath, and a darker shade of green on the upper surface than those of R. arboreum. The flowers are borne in dense heads, a little smaller than those of R. arboreum, and are dark-red in colour, several shades darker than any flowers of R. arboreum which I have seen. This plant was originally sent to the Jardin des Plantes with R. lacteum, R. yunnanense, R. decorum, and others of that set. It was sent to Ireland as a small seedling very shortly after its introduction.

F. W. MOORE.

January, 1918.

The Rhododendron Society Notes.

INJURY BY FROST DURING WINTER 1916–17.

Contributed by Sir Frederick W. Moore.

In most parts of Ireland Rhododendrons came through the trying winter practically uninjured. There are records of a few species such as R. ciliicalyx, R. sublanceolatum, R. Nuttallii, and R. Edgeworthii being killed, or badly injured, but in some cases we may infer that the death was due to debility on the part of the plant, rather than to inability to withstand the degree of cold experienced, a degree varying from 15°F to 26°F according to district. In proof of this it may be mentioned that in the same garden one plant of R. Edgeworthii was killed, another is practically uninjured. R. Nuttallii is not hardy in any part of Ireland, R. Edgeworthii only in a few favoured localities. In all the collections visited by me in 1917, I found such reputedly tender species and varieties as R. ciliatum, R. Keysii, R. Griffithianum, R. Kingianum, R. Maddenii, R. calophyllum, R. "Dennisonii," R. "Sesterianum," R. "fragrantissimum," R. Fordii, quite safe. Rhododendrons, especially the large broad leaved species, looked very miserable in March, and some were almost defoliated, but they quickly recovered and came away vigorously. The severest cold was early in the winter, but by far the greatest damage to plants was caused by the snow, frost, and icy storms of the last ten days of March, and first fortnight of April. It is remarkable to find in gardens where Veronicas, Hypericum olympicum, H. Hookerianum, Ceanothus thyrsiflorus, Fabiana imbricata, Phlomis fruticosa, Pittosporum mayii, Salvia Grahamii, were killed, Rhododendrons practically escaped injury.

F. W. MOORE.

January, 1918.

RHODODENDRON ARBOREUM AND ITS INTRODUCTION.

Contributed by Lieut.-Colonel Sir David Prain and Mr. W. J. Bean.

Next to R. PONTICUM and R. CATAWBIENSE no Rhododendron ever introduced has had so great an influence on the evergreen garden hybrids of this genus as R. ARBOREUM, that is, the crimson-flowered type with leaves silvery beneath. Previous to its introduction, the species in cultivation, probably not more than ten in all, had flowers varying only in colour from white to pink and purple. R. ARBOREUM was the first, and has remained the chief, source of those rich scarlet or blood-red shades which belong to the most brilliantly coloured of the hardier hybrids, such as "DONCASTER" or "MICHAEL WATERER." Yet a certain mystery surrounds the introduction of this Rhododendron as a living plant to this country.

Neither of the Aitons in their editions of the HORTUS KEWENSIS, the last of which—the EPITOME, by W. T. Aiton—was published in 1814, mentions R. ARBOREUM, although it is certain that seeds had been sent to England in 1796 or 1797. Mr. J. G. Millais in this Society's NOTES (page 31), says that Wallich sent seed to Mr. Shepherd, of Liverpool, in 1814. Is he not here confusing the introduction of R. ARBOREUM with that of its white variety ALBUM, which latter plant Sir William Hooker in the BOTANICAL MAGAZINE, in 1834, under tab. 3290, states "was raised from seeds sent by Dr. Wallich to Mr. Shepherd, of Liverpool, about 20 years ago" (i.e., 1814)?

The information as to the source and agency of this introduction is as precise as could be desired. It is less definite as regards the date. We know, however, from other sources that seeds of the *white* ARBOREUM cannot have been collected by Wallich 20 years before the publication of the plate in the BOTANICAL MAGAZINE. The suggestion may have been due to the circumstance that in the year 1814 Wallich actually was under orders to proceed to Nepal for the purpose of joining the Army. But Wallich had not left Calcutta on 23rd December of that year, when it was decided to instruct him to remain at headquarters in order that he might assume temporary charge of the Calcutta Botanic Garden, when Buchanan, the Superintendent, should retire in the following year. Wallich did in fact assume charge on 24th February, 1815, and continued to act as Superintendent until 20th April, 1816, when he reverted to military duty; it was not until 1st August, 1817, that Wallich, who had in the meantime been appointed permanent Superintendent by the Court of Directors in London, once more assumed charge of the Botanic Garden.

It may have been contemporary acquaintance with the fact that, during the earlier portion of that year, Wallich was not at the Botanic Garden, which led Loudon and subsequent writers to give the date of the introduction of the red ARBOREUM as 1817. But apart from the fact that Wallich did not visit Nepal until some years later, the circumstance that the *red* ARBOREUM had

flowered in this country by the spring of 1825, makes the suggestion improbable. We hardly think that plants raised only eight years earlier could have had time to reach the flowering state.

Captain Thomas Hardwicke was probably not the first European to see R. ARBOREUM in flower, but he was the first to put its existence on record. He made a journey to Srinagur between March and May, 1796, of which journey he published, three years later, an account in the ASIATICK RESEARCHES, Vol. VI. At page 359 occurs the following: "Growing in forests of oak on the high ridge of mountains near Adwaanee is a large tree just now conspicuous for its abundant display of large crimson flowers. Leaves without order about the upper part of the branches, petioled, lance-oblong, entire, smooth above, hoary-white beneath. Flowers produced in terminal racemes. . . Corol one-petaled, tubular, bell-mouthed. . . . Stamens ten, of unequal length. . . . Style longer than the stamens. It approaches nearest to Rhododendron, but will probably not be admitted there; and perhaps will form a new genus. The natives call it BOORANS, the wood is used for making the stocks of matchlocks."

The tree here referred to is undoubtedly R. ARBOREUM, and this seems to be the first description of that plant ever printed.

Sir James Smith in his EXOTIC BOTANY, published at Norwich in 1804, first applied the name of R. ARBOREUM to this plant, and gave a coloured plate of it (tab. 6). He says "first noticed by Captain Hardwicke on a tour to Sireenagur in 1796, growing in a mountainous tract called the Sewalic Chain, which separates the plains of Hindostan between 75° and 85° east longitude from the Himmaleh Mountains. Generally found in forests of oak, the soil a rich vegetable black earth. It flowers in March and April, and ripens seed late in May or early in June, a few days before the commencement of the periodical rains. We are obliged to Captain Hardwicke for our description and drawing, both made on the spot. It is hoped that the seeds which that gentleman has liberally distributed in England will enrich our collections with this noble tree."

How the misapprehension entertained by Smith as to the original locality of R. ARBOREUM may have arisen it is difficult to say. There is no record of the occurrence of R. ARBOREUM in the Siwaliks in the works of Brandis, Duthie and Kanji Lal, dealing with this range of hills, whose highest peak only reaches a height of 3,500 feet, which barely exceeds the lowest recorded limit of this tree. Mr. J. S. Gamble, whom we have consulted, informs us that although he has crossed the Siwaliks at many points, and actually had to make an inspection path nearly the whole way along the crest of the range, he never saw or heard of R. ARBOREUM there. He adds that Quercus incana, the almost inseparable companion of R. ARBOREUM, is equally absent from the Siwaliks, and that although this oak does occur in one swamp locality in the Dehra Dún, which separates the Siwaliks from the Himalaya, it is not in that rather special locality accompanied by the Rhododendron.

We know, however, that on his tour to Srinagar, in Kamaon, in 1796, Hardwicke did not cross the Siwaliks. His route took him from Najibabad, in the Bijnaur district, which place he left on 20th April, 1796, to Kotdwara, at the foot of the Garhwal Himalayas, through the wide gap which separates the

portion of the Siwaliks lying west of the Ganges from that part of the range to the east of the river. From Kotdwara to Srinagar his route, which consisted of nine marches, lay wholly in the Himalayas. His fourth march from Kotdwara, on April 24th, brought him to Belkate, 78°45′ E., 29°58′ N., through forests of oak, fir and " boorans " (R. ARBOREUM), which tree his journal then mentions for the first time. Next day he reached Nataana, 5,100 feet, 78°45′ E., 30°5′ N., and the close of his march on April 26th, brought him to Adwaanee, a name not to be found on modern maps, along a ridge which reaches the level of 7,000 feet in long. 78°47′ E. and lat. 30°6′ N.

Smith's mistake had already been detected by Don, who in 1825 indicated correctly that Hardwicke's specimens of R. ARBOREUM had come from Kamaon, where at a later date, Kamrup, one of Wallich's native collectors, found the tree again.

Hardwicke, then, has to be credited with the first sending of seeds to this country. He must have collected year-old capsules on the tree at the time it was in blossom. Whether the seeds grew or not we are not told by Smith, although if they had done so they would have been seven years old by then. This, with the absence of any mention by W. T. Aiton, in 1814, seems to indicate that they failed.

The first flowering of R. ARBOREUM in England is recorded by Lindley in the BOTANICAL REGISTER, under tab. 890, published in London in 1825. Lindley says : " It is now several years since the present plant was raised in this country from seed, but not until the last few weeks had it produced its blossoms in any collection in Europe. In the beginning of April we were kindly supplied with the specimen from which our figure has been taken, by Mrs. Alexander Baring,* under the judicious management of whose gardener at The Grange, Mr. Peter McArthur, the plant has expanded its flowers in all their beauty." Lindley evidently had no precise information of the raising of Mrs. Baring's plant, and it is extremely unlikely that, if Hardwicke's seeds had grown, the flowering of R. ARBOREUM would have been delayed as long as 1825—29 years after he had gathered them. On the whole, therefore, we may conclude that they perished, and that the plants which flowered in various places over the country in, and subsequent to, 1825, were raised from a later sending.

Sir William Hooker in his EXOTIC FLORA (Edinburgh, 1827), where R. ARBOREUM is figured at tab. 168, says : " well known as a native of Nepal, where it was found by Dr. Hamilton and Dr. Wallich about Narainhatty." This locality had already been given by Don in 1825.

Paxton in his MAGAZINE OF BOTANY, Vol. I., page 101 (London, 1841), writes : " The botanical world are indebted to the indefatigable Dr. Wallich for the introduction of this, and, we believe, of three other species of Rhododendron from the lately explored country of Nepal. . . . It was introduced in 1820, the white variety of it, we believe, a year or two before." Paxton is palpably wrong

* Presumably the wife of Alexander Baring, of The Grange, Northington, Arlesford, Hants. He was b. 1774 and d. 1848, and raised to the Peerage as Baron Ashburton in 1835. Possibly the Ashburton papers may mention the provenance of this plant.—C.C.E.

in giving the date 1820, if he intended it as that of the original introduction, as no R. ARBOREUM would reach the blossoming state in five years from seed.

The two most likely collectors after Hardwicke were Hamilton* (once Buchanan) and Wallich, successive Superintendents of the Botanic Gardens at Calcutta. It is to the latter of these that Hooker and Paxton give the credit, but he did not visit Nepal until 1819-20. Hamilton resided in that country in 1802 and 1803, and we know from his correspondence that he sent seeds of this tree from Nepal to his friend Dr. Roxburgh, then Superintendent of the Botanic Garden at Calcutta. On April 11th, 1802, writing from Chitlong, he informed Roxburgh of his despatch of seeds of "RHODODENDRON PURPUREUM, *Buch.*, a most elegant tree. It must be the one described by Captain Hardwicke, whose paper I have not seen." The name "PURPUREUM" was what he evidently proposed for the tree—a very unsuitable one to our ideas—but possibly he may have seen only faded flowers. He sent Roxburgh two further consignments of seeds from Catmandu, one on January 31st, 1803, the other on March 10th, 1803.

In 1810 Hamilton was stationed on the borders of Nepal, and sent collectors into that country. Writing from Nauthpore, June 30th, 1810, he says: "I send by our friend Mr. Smith, a few seeds and young plants. . . . I have repeatedly sent into the hills. . . . As the most unhealthy season is over, I hope to be able to procure a considerable supply [of seeds] for you, which I shall be able to dispatch when the fair weather sets in and before I leave this place."

We can see therefore that Hamilton was anxious to get the Rhododendron and other plants established in cultivation. There is no specimen of his in the Kew Herbarium belonging to the 1802-3 period, but there is one attributed to Hamilton, from Nepal, dated April 10th, 1810. Hamilton, who afterwards settled on the ancestral property in Scotland, we know was an ardent cultivator, and, as his correspondence shows, very keen to introduce plants from North India to his native country. Seeds of the year 1809, would still be on the tree when this specimen was collected, and we think it extremely likely that, with his horticultural tastes, he did obtain seeds at this date. Allowing 15 years for the plant to reach the flowering state, which is probably an average period for R. ARBOREUM, this would give us 1825, the year when it first flowered in England.

Wallich, who is so often given the credit of introducing this Rhododendron, may have done so, but he was not, we think, the *first* to do so. There is no record of his having visited any of the natural sites of the typical R. ARBOREUM until 1819-21, when he visited Nepal, and, as the Kew Herbarium bears witness, collected specimens not only of the red type, but also of several varieties such as ALBUM, ROSEUM, and one he calls FOLIIS UNDULATIS, with leaves silvery beneath and prettily crimped or frilled at the margins. All these were collected between March and June, 1821, many on Sheopore Mountain. One also is given as "EX SIRINAGUR," Hardwicke's original locality, where it was found, so Don

* Francis Hamilton, formerly Buchanan, of Leny, Callander, Perthshire. Leny is now the property of his grandson, John Hamilton Buchanan, chief of the clan Buchanan. See "A SKETCH OF THE LIFE OF FRANCIS HAMILTON" (once Buchanan), by Sir David Prain (Calcutta, Bengal Secretariat Press, 1905). There are at Leny a number of large rhododendrons of early introduction.—C.C.E.

tells us, by Kamrup. But we learn too from Don that Hamilton also knew the *white* ARBOREUM from Nepal, and had named it R. ALBUM.

On the whole then, whilst credit must be given to Captain Hardwicke for having first brought the tree to the notice of Europeans, and for having first sent home seeds, we shall have to leave it unsettled as to who sent the seeds from which the first living plants were raised. Hardwicke, we believe, was too early, Wallich too late. We incline to the belief that, if the credit must be given to one of these three distinguished collectors, Hamilton was the man. There is, however, another possibility which should not be overlooked. We have seen that Wallich was among the officers under instructions to join the expeditionary force which, towards the end of 1814, was organized by the Government of Bengal to invade Nepal. If Wallich was unable to take part in this campaign himself he may very well have been the recipient of collections of seeds made during its course. It has been rare for a transfrontier campaign to take place in India without some officer generously doing all in his power to help the Calcutta Garden in this way. The treaty which followed the conclusion of this campaign was signed on 2nd September, 1815, and ratified on 4th March, 1816. That treaty assigned to the East India Company a portion of the North-western Himalaya which includes the district through which Hardwicke's route lay. The receipt by Wallich of seeds of the red R. ARBOREUM during 1815, is, therefore, not only possible but probable, and if he despatched these to Mr. Shepherd, of Liverpool, along with seeds of the white, the date suggested by Sir William Hooker is correct almost to a year. But in this case the credit due to Wallich is that of the forwarding agent not that of the collector.

R. ARBOREUM in the Western Himalaya is usually to be found in a forest association which includes QUERCUS INCANA and ANDROMEDA OVALIFOLIA. In the Khasia Hills, where it is also common, it is to be found more especially on the rocky sides of the numerous gorges of that table land. In the Naga Hills, further to the north, it occurs in a forest association similar to that in the North-west Himalaya though with different companion oaks, and is most abundant near the crests of rocky ridges and on the edges of cliffs where it secures comparative freedom from shade.

D. PRAIN.

December, 1917. W. J. BEAN.

NOTE.—Sir David Prain, in a letter to Mr. Eley, dated 29th December, 1917, writes:—"Perhaps some Member of the Rhododendron Society whose 'forebears' have taken care to file their correspondence may be induced to look up letters or bills of the period 1797—1821, and see if there is any mention in these of seeds or plants of this Rhododendron.
Only in some such way as this are we likely now to learn the exact year of successful introduction.
If the exact year were known, I think the facts we have managed to unearth from old books, letters and specimens may enable us to decide who was the successful introducer."

The Rhododendron Society Notes.

RHODODENDRONS AT RIVERHILL, SEVENOAKS.

CONTRIBUTED BY LIEUT.-COLONEL J. M. ROGERS.

I fear I have not much to report, having seen no one else's garden this year and very little of my own.

The long-continued cold spring caused curious effects, which probably everyone experienced in common, but as members live in such various districts it may be worth while to exchange a few notes.

Here winter continued up to 26th April, the lowest temperature in screen being 20° Fahr. on 5th and 7th February. A few days later summer came with a rush, screen maximum on 2nd May being 71° and 14 days in May exceeding 70°. Everything burst out at once. R. DAURICUM had made an attempt earlier and got frozen, but even R. "NOBLEANUM" and R. "PRÆCOX" had waited till now. My outdoor AUCKLANDII had 30 perfect flowers out on 18th May. Plums, cherries and apples all flowered together, a thing which I never saw before, and the orchards all over Kent were a wonderful sight. There was a plague of caterpillars, due largely to the great mortality among the Tits in the winter, and much damage was done to apples by a gale at end of August, but the cherry crop was good, apples and pears very fair, while plums and damsons beat all records.

None of the Rhododendrons here minded the winter, and but for the simultaneous flowering, it was an uneventful season for them. I had noticed during the last few years that the plants in a particular bed of deep peat had been going back and wondered why, this autumn they were moribund, and when removing them I discovered the cause, which perhaps is worth mentioning. Some years ago a bit of rock work was made near by and in excavating for it a pocket of Atherfield clay of the consistency of cream cheese, was struck. The workmen to save themselves trouble had scattered some of this under the Rhododendrons to the depth of about three inches. It was not discovered at the time, and that it caused the death of the plants I have no doubt, as the only survivor, being at the back, escaped this top dressing.

A feature of this year is that many plants have formed seed which do not usually do so. A large Magnolia which is I think a hybrid conspicua has matured quite a lot, one seed has developed on the side of almost every flower column and being bright-red has a curious grotesque effect.

The experience of last winter makes me think there must be a great difference in hardiness between different individuals of the same species, and probably seedlings from these would reproduce the same character.

J. M. ROGERS.

22nd December, 1917.

The Rhododendron Society Notes.

RHODODENDRONS AT GLASNEVIN AND ROSTREVOR.

Contributed by Lieut.-Colonel Sir John Ross of Bladensburg, K.C.B.

Most of the members of the Rhododendron Society are so well acquainted with the Royal Botanic Gardens at Glasnevin, that it would almost be a work of supererogation to attempt to give notes on the magnificent collection of plants that are to be found there; besides I feel that it would require some one with far more knowledge of the subject than I can pretend to have, to undertake such a task. I could scarcely do justice to these Gardens, nor adequately describe the many plants of interest that are growing there. Glasnevin is rightly celebrated for its numerous treasures, not in one or more departments only, but in all branches of horticultural science. Orchids, tender plants of every sort, alpines, herbaceous and aquatic plants, bulbs, hardy trees and shrubs, ferns, etc., are all well represented in their endless varieties, and being well cared for, luxuriate in plenty; while some of them form unrivalled collections not to be found elsewhere. It is due to the influence of Glasnevin that Irish horticulture has taken its rise; and owing to the example set to us, and to the sympathetic encouragement we invariably receive, as well as to the general mildness of the Irish climate, many have become keenly interested in plants, and have sought to enrich their gardens and grounds by growing such species as are likely to become acclimatized in the island. The soil, however, in the neighbourhood of Dublin is not favourable to the cultivation of Rhododendrons. It is too much saturated with lime, and Glasnevin labours under this disadvantage. Nevertheless by specially prepared beds with peat and loam brought from a distance, a large quantity of Rhododendrons are to be found there, and thanks to the special care taken to satisfy their requirements, they generally do very well.

There is one remarkable species among them to which I should like to draw attention. It was obtained some years ago from the Botanic Gardens in Paris, under the name of R. YUNNANENSE. It is extraordinarily floriferous, much more so than any other Rhododendron I have seen; the flowers are white with pink spots, so numerous that when in bloom scarcely any leaves are to be seen. It grows slowly, making every year short hard shoots, and now the plant is some 9 feet high and 8 feet through. It is quite distinct from the usual form of R. YUNNANENSE. At one time it was supposed to be R. CHARTOPHYLLUM; but it also differs from that species. I do not think its name has yet been properly determined. Unfortunately it has defied all efforts made to propagate it; it seems to be perfectly hardy and healthy; but it produces no ripe seed and layers refuse to root. If only young plants could be obtained from it and grown elsewhere and under different conditions, then we might see whether they would preserve the same characteristics which belong to the Glasnevin plant, and which seem to differentiate it from any other Rhododendron I have seen.

The Rhododendron Society Notes.

The effects of last winter and spring were not, on the whole, as disastrous as we were led to think would be the case when we were suffering from the long spell of cold weather that marked the season 1916-17. Many plants which I thought were badly injured at Rostrevor revived, and in one instance, I observed that proustia pyrifolia, which was cut down to the ground and which at one time appeared to be killed, made a rapid recovery and grew more luxuriantly in the past summer than it had ever done in previous years. The losses among the Rhododendrons here were confined to R. CILIICALYX (whose hardiness in really severe weather appears doubtful), and R OXYPHYLLUM; but the latter was a small specimen and it ought to have been in a frame until it was larger and better able to resist the cold. All other Rhododendrons were unhurt, including DALHOUSIÆ, EDGEWORTHII, EXIMIUM, GRIFFITHIANUM, LANATUM, MADDENII (and its varieties CALOPHYLLUM and JENKINSII), YUNNANENSE, etc. I had no specimen of R. NUTTALLII outside It would be interesting to know how it, as well as R. BOOTHII and CHAMPIONÆ fared in the open last winter, and whether these three species flourish anywhere in the United Kingdom with or without wall prctection.

There was a good deal of fruit last autumn, more so than in normal years. I was interested in seeing for the first time the small bright berries of the Japanese deciduous Holly, Ilex, Sieboldi and its variety fructu albo. The autumn colouring moreover seemed peculiarly brilliant, finer and better than in former seasons.

Up to the present the winter has also been severe, and we have had much more frost than we usually get. On one occasion this month the thermometer sank to between 16° and 17° F., which is the lowest reading I can remember at Rostrevor for many years. But, except for one day just before Christmas during which we were visited by a blizzard, the cold was dry and windless, and the damage done does not appear to be as great as was the case twelve months ago.

JOHN ROSS OF BLADENSBURG.

24th January, 1918.

RHODODENDRON NOTES FOR 1917.

CONTRIBUTED BY J. C. WILLIAMS.

The effect of the frost of this last winter on the Rhododendron buds was irregular and unusual. I only give details of those well-known kinds which are uncertain even in a good winter. R. AUCKLANDII lost a great many buds and most of the remaining buds were injured in the terminal pips of the truss; no plant was in any way injured.

R. MADDENII never flowered better and never lost so few buds, no flower which I noticed had any mark of the frost on it.

The EDGEWORTHII, BULLATUM lot in a big group together, on rather high ground, were never so good, and were free from all injury, some of them had flowers over six inches across in the case of each kind.

Wilson's STAMINEUM, No. 758, of 1900, flowered well and was quite uninjured.

Forrest's 5530, (R. STENAULUM of this section), had a very bad time and were nearly wiped out, and his 7673 proved even softer, though some are alive.

R. LINDLEYI and R. DALHOUSIÆ were quite uninjured.

R. NUTTALLII, on a wall and well sheltered, is I think dead.

Of the softer hybrids AUCKLANDII × blood-red ARBOREUM, now sixteen years old, had almost every flower cut out by the frost or half frozen. AUCKLANDII × a white ARBOREUM in the same place as the last named plant was much as usual.

Nearly all the flowers open when the frost came were injured excepting R. FARGESII and R. BARBATUM, they held on for a long while. FARGESII is always remarkable in this respect.

The following Rhododendrons, not very well known, have flowered here recently, some this year and some before.

The term hardy means that they are hardy in the Werrington Garden, near Launceston, which has a very cold winter nearly always, and I should not think of planting the softer Indians there, whilst seedlings of CRASSUM, SINOGRANDE, HABROTRICHUM and OVATUM are all killed off in an average winter.

R. CUNEATUM—10059—10071—10435. This is rather like an evergreen form of R. MUCRONULATUM, though not if you come close to it, it may have nice forms of lavender-lilac flower amongst the seedlings, though the two plants I have seen in flower were not remarkable, but after the mistakes some of us have made about the newer species when first flowering, particularly with Wilson's DAVIDSONIANUM, I should not go very quickly to a decision. It is quite hardy I believe.

Forrest's 6777. SULFUREUM MICROFORME, once called R. BRACHYANTHUM, has a pretty small campanulate yellow flower, it seems to dislike a hot place and needs a low bank to show it well. It is hardy.

R. DECORUM of Forrest has given us one very beautiful rose-pink form, and this colour seems to be latent in all the FORTUNEI section, in Wilson's there are several very good ones of this colour, and the hybrids raised by

Mr. George Harrow from Wilson's 885—887, etc., show constant evidence of it, and they are some of them of great beauty with a nice scent, coming into flower in July.

R. FITTIANUM is one of the smaller species; say 3 to 4 feet high at a guess, which was found as a rogue in 10278. It was a nice lavender flower under glass, but the buds outside just met the worst frost, and it changed their colour, after that they set good seed, and the plant is I believe quite hardy, coming from 12,000 feet.

R. HÆMATODES 6773 is a very beautiful dwarf shrub, with blooms of a vivid ruby crimson, it will flower on plants 3 to 6 inches high, and is spreading rather than upright in its growth. It is hardy, and some plants flower in the autumn.

R. HIPPOPHÆOIDES 10333. . This plant when many seedlings are opening together gives a great variety of beautiful lavender-lilac flowers, and they are larger than all others of this section so far. It should not face the full sun I think. It is quite hardy.

R. LEDOIDES 11246. Is a shrub of about 2 feet (Forrest says). Its flowers are white to pink when they first open, and the flower is like that of a small daphne, with a nice little truss. It seems hardy.

R. MOLLICOMUM 10347. Is a shrub of 4 to 6 feet, those which have flowered have been a pleasant pink colour, and range from light to a darker pink. In some aspects it is rather like one of the small species of fuchsia, not the trade forms. I doubt its being hardy a cold country.

R. CALLIMORPHUM 9055. It flowered in 1917 at a little over four years old, and on several different plants, it has a very round dark leaf, a truss of pink flowers of a very pleasant colour, and with a dark pink blotch, the flowers are rather like ORBICULARE in shape, but are a good deal smaller. It has set seed to other pollen but not to its own pollen, and the pods are larger than those of CAMPYLOCARPUM and even more hooked, but the natural size may have been increased by the use of alien pollen.

R. SCINTILLANS 10014. Is of the INTRICATUM section, and is hardly second to 10333 in its beauty of colour, the best forms being of a delightful lavender-blue, but it has not such striking foliage as 10333 to contrast with the flower.

R. RUPICOLUM 5865 and 10314. This plant has flowered in several gardens since 1914, but is interesting in that it is growing freely here in a border full of lime and in full sun; this was made for Iris Lortetii, it has grown well there, and perhaps better than in peat.

R. NERIIFLORUM 6780, etc. This has the brilliant blood-red colour of the best Indian ARBOREUM, but is hardy, the Tali form is given by Forrest under 6780 as 2 to 3 feet high, but 8939 from the Shweli Salwin is given as a shrub of 15 to 20 feet, and if as hardy as the Tali plant ought to be of service in producing hardy red Rhododendrons which I have not seen in the trade varieties.

R. IRRORATUM 5851. Is as a rule identical with the picture of it in the Bot. Mag., though it is not quite so plain, but it also produces in a big batch of seedlings, forms of a creamy-yellow without the spots, and these are very nice and particularly refined flowers.

J. C. WILLIAMS.

November, 1917.

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The Rhododendron Society Notes.

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The Rhododendron Society Notes.

NOTES

CONTRIBUTED BY

MEMBERS OF THE SOCIETY

FOR THE YEAR

1918

All communications regarding the publications of the Rhododendron Society should be made to Charles Eley, East Bergholt, Suffolk.

No. IV., 1918.

The Rhododendron Society Notes.

MEMBERS' NOTES FOR THE YEAR 1918.

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THE FORTUNEI GROUP OF RHODODENDRONS.

Of the numerous species of Rhododendron introduced from China in recent times few, if any, promise to be of greater value in gardens generally than those belonging to the group of which R. FORTUNEI (it being the oldest species), may be taken as the type. This group is characterized by large, smooth-textured leaves, fragrant flowers, and a white or rosy-tinted, seven-lobed corolla. I take the species belonging to this group to be :—

R. FORTUNEI
R. HOULSTONII
R. DECORUM
R. DISCOLOR
R. HEMSLEYANUM
R. SEROTINUM
R. VERNICOSUM
R. AURICULATUM

In a broader sense the group might be taken to include R. DAVIDII, R. FARGESII, R. OREODOXA and others, but it is the species clustered round R. Fortunei itself that I am more concerned with now. R. HEMSLEYANUM I do not believe is in cultivation but all the others mentioned, with the possible exception of R. SEROTINUM, are well adapted to the average climate of the British Isles.

R. FORTUNEI, *Lindley.*

This Rhododendron was discovered by Robt. Fortune in the mountains west of Ningpo, in the province of Chekiang, in Eastern China, and introduced about the year 1856. It was named after its discoverer by Lindley (or may be Thos. Moore), in the GARDENERS' CHRONICLE for 1859, p. 868. As it had not then flowered under cultivation the description was very perfunctory, and published chiefly to associate Fortune's name with the plant before it got abroad in gardens. The plants were then growing in the Chiswick nursery of Mr. Glendinning, to whom at that period Fortune appears to have been sending his discoveries. A note from Fortune is appended to the description which reads as follows :—

"When on one of my long journeys in the province of Chekiang, I accidentally met with this fine species amongst the mountains, about 3,000 feet above the level of the sea. The discovery was most unexpected, for although the lower parts of the mountains are covered with the allied genus Azalea, no Rhododendron had been known to exist in this part of China. The specimens I met were of all sizes, from one year's seedlings to full-grown plants, the latter being 10 to 12 feet in height. The large plants had been covered with flower a short time before, and the ground under the branches was now strewed with decayed blossoms, but not in a fit state for examination. I was told on all sides by the natives that the plants were most beautiful objects when in full bloom. When I returned to the same place in the autumn I found an abundance of ripe seed which has vegetated freely in Mr. Glendinning's nursery. The only other species of Rhododendron known in China is R. CHAMPIONAE, *Hooker*, a pretty plant, discovered by the lamented Col. Champion on the Hong Kong hills."

Later in the year (GARDENERS' CHRONICLE, 1859, p. 1019), the following occurs :—

" *Sale of Rhododendron Fortunei, Taxus cuspidata and other Conifers.* These were sold by Mr. Stevens, on Saturday last (December 3rd, 1859), and realized the following prices : R. Fortunei, in lots of six strong plants, 11*s.* to £1 11*s.*, other lots of 10 plants each from 12*s.* to 15*s.* per lot, and smaller plants fetched even less money. The original imported plant from Japan realized £8 10*s.*" (Japan no doubt is in mistake for China.)

Judging by these prices there does not appear, sixty years ago, to have been any great enthusiasm for new species of Rhododendron, although it must be remembered most of them were probably only seedlings two or three years old. If one could see Messrs.* Stevens' sale books of the time it would no doubt be possible to find out to whom the imported plant that fetched £8 10*s.* was sold. It does not appear to have flowered very soon, for in the GARDENERS' CHRONICLE for June 4th, 1864, p. 536, there appeared the following : " We have to thank A. G. for flowers of what *is said* to be Rhododendron Fortunei, and very ugly they are. Can no one favour us with an authentic specimen ? "

The first recorded authentic flowering occurred two years later, May, 1866, in the garden of Mr. Luscombe, at Coombe Royal, Kingsbridge, Devon, when the BOTANICAL MAGAZINE plate was made. It was published later in the same year as tab. 5596. Mr. Luscombe writes in the GARDENERS' CHRONICLE for 1868, p. 1067 : " It may interest your readers to know that this fine Rhododendron is perfectly hardy in South Devon, the plant at Coombe Royal being wholly uninjured by the severe weather of 1866-7."

Mr. Luscombe, as we know, was the first to use R. FORTUNEI for hybridizing, and raised from it the fine R. " LUSCOMBEI," " LUSCOMBEI SPLENDENS," " MRS. THISELTON-DYER," etc.

Some doubt has been expressed as to whether the original R. FORTUNEI of the BOTANICAL MAGAZINE (" Fortune's Fortunei ") is the same as we grow to-day. The characteristic glands on the style, flower-stalk and outside the corolla are not shown in the figure, nor are they mentioned in the text. These, however, are omissions on the part of the artist and author as can be seen by examining the actual specimens from Mr. Luscombe, figured in May, 1866, which are preserved at Kew.

I do not know that seeds of R. FORTUNEI have ever been reintroduced from the actual site where Fortune discovered it. This, the Chekiang habitat of the plant, Tientai Mountain, was visited in 1884, by Mr. Cooper, and in 1878, Charles Maries, at that time in the employ of Messrs. Veitch, found R FORTUNEI in the mountains of Kewkiang, some 200 miles west of the Chekiang site, a locality also visited by Mr. T. L. Bullock in 1892. In 1907, E. H. Wilson found it at Kuling, in the province of Kiangsi, some miles south of Kewkiang. There is no record that either Cooper or Bullock sent home seed. Messrs. Veitch tell us that Maries did, but his as well as the other collectors' dried specimens at Kew are in the flowering state.

* A subsequent enquiry has failed. C.C.E.

There is an old plant at Kew which I believe may belong to Fortune's importation, if not of the first, at least of the second generation. I knew it thirty years ago, and think it was then too large to have been raised from seed sent home by Maries ten years previously. I believe also the fine plant in Noble's old nursery at Sunningdale is of the original importation. But judging by the dried specimens there is no difference between the original plants of Fortune's introduction and those found 200 miles more inland by Maries.

There appears to be an impression that R. FORTUNEI occurs wild in Western China. In Mr. J. C. Williams' list of Rhododendron species at Caerhays, in the last number of the Society's Notes (p. 136), his No. 102 is given as a FORTUNEI of Wilson's introduction. I believe this "Wilson 885" to be DISCOLOR, and venture the opinion that the true R. FORTUNEI has not yet been found anywhere wild except in Eastern China.

R. HEMSLEYANUM, *E. H. Wilson.*

There is really not very much to be said about this species for, so far as I know, it has not been introduced to cultivation, and there is only one specimen in the Herbarium at Kew. It was discovered by Wilson in flower June, 1904, on Mt. Omi, in Szechuan, the plants 20 feet high. It is closely allied in botanical characters to R. FORTUNEI, having the same smooth stamens and glandular ovary and style. It differs, however, in the leaves, which are more like those of R. SEROTINUM, very thick and leathery, 6 to 8 inches long, 3 to 4 inches wide, with two large auricles at the base. The flowers, ten or so in a truss, are white and 3 inches wide, the flowerstalk clothed with stalked glands. Mr. Wilson says he saw it only on Mt. Omi, and that it was rare even there. He describes it as one of the largest and most handsome of the Chinese Rhododendrons.

R. HOULSTONII, *Hemsley et Wilson.*

This Rhododendron was first named and described in the Kew Bulletin for 1910, p. 110. Mr. Wilson evidently altered his mind as to its right to specific rank, for in the PLANTÆ WILSONIANÆ i., p. 541, he, in association with Mr. Rehder, reduced it to a variety of R. FORTUNEI. Nobody has ever been able to define what exactly constitutes a species, and I am afraid no one ever will. It must always remain a matter of opinion or, more likely, of the author's temperament and frame of mind. But R. HOULSTONII seems to me to have a claim to specific rank quite as clear for instance as that of R. DISCOLOR. It differs from R. FORTUNEI in the leaves, which are smaller and more tapered at the base; in the flowers, which have a more bell-shaped corolla and longer stamens; in the flower-stalks, which are covered with much more conspicuous stalked glands; and finally, in the blossoming season, which is at the end of April, or early in May, and therefore about three weeks in advance of R. FORTUNEI.

I have seen R. HOULSTONII only once in bloom—in 1918—and the plant was one at Kew with the Wilson number 648a. The flowers are of a very pleasant soft pink, nearly 3 inches in diameter, and eight or ten in a cluster. On page 166 of the Society's Notes, Mr. Magor alludes to 885 Wilson as "Houlstonii or discolor?" That his plant, which flowered in July, is the latter I feel sure.

One of the Wilson numbers for DISCOLOR is 885, and HOULSTONII flowers two months or so before DISCOLOR.

Wilson found R. HOULSTONII in woods in Western Hupeh.

R. VERNICOSUM, *Franchet.*

[*syn.* R. LUCIDUM, *Franchet*].

Under the name of R. LUCIDUM this plant was originally described by Franchet in the JOURNAL DE BOTANIQUE for 1895, p. 390. Finding afterwards that the name "lucidum" had already been used by Nuttall for another species, he, three years later, changed the name to VERNICOSUM (see JOURN. DE BOT., 1898, p. 258). A plant was obtained for the Kew collection from Messrs. Veitch under Wilson's number 1777, which flowered in early May last year. Messrs. Wilson and Rehder in the PLANTÆ WILSONIANÆ i., p. 541, make it the same as R. DECORUM. This I cannot agree with. In the first place the stamens are glabrous, a character which brings it nearer FORTUNEI than DECORUM; its corolla is more bell-shaped, and its leaves are of a different shape, being proportionately shorter and broader. Forrest collected it in N. W. Yunnan in May, 1906, his specimens being numbered 2190 and 2222. There is a picture of it in the GARDENERS' CHRONICLE for February 19th, 1910, reproduced from a photograph by Forrest, and in the accompanying note we are told that it was then growing and approaching the flowering state in the Edinburgh Botanic Garden.

The larger leaves are 4 inches long and $2\frac{1}{4}$ inches wide, oval, terminated by a mucronate tip and rounded or slightly cordate at the base; the stalk is often over 1 inch long, and considerably longer in proportion to the blade than that of DECORUM. The flowers are in trusses of six to eight, the corolla six or seven-lobed, 2 to 3 inches wide, white to rosy-pink and widely bell-shaped. Ovary, style and flower stalk are glandular. Forrest describes it as a shrub of spreading habit, 10 to 25 feet high. It was first discovered by Soulié, in E. Szechuan, in 1893.

R. DISCOLOR, *Franchet.*

[*syn.* R. KIRKII, *Hort.*].

To those of us who live in the cooler parts of the country, I think R. DISCOLOR will prove to be one of the most useful of all the new species from China. Of the Fortunei group it is in my opinion the finest. First discovered by the French missionary, Farges, in E. Szechuan, it was introduced by Wilson about the beginning of this century, when collecting for Messrs. Veitch. By them it was distributed under the Wilson number 885. It has the largest flowers of all the Fortunei group, and last year I measured some quite 4 inches in diameter. They vary in colour from a shell-pink to quite rosy-pink. Compared with R. FORTUNEI, the plant is more open and tree-like in habit (Wilson found it up to 20 feet high), and its leaves are usually narrowly tapered at the base. In the botanical characters of the flower it does not differ much, having the same glandular ovary and style and the same glabrous stamens; the calyx, however,

is larger and much more distinctly lobed. Still, the most salient characteristic of R. DISCOLOR is its late flowering. It is this, added to its fine flowers and noble trusses, that makes its advent to gardens so interesting and welcome. At Kew it flowers from about midsummer's day to the middle of July. I had a truss from Lamellen, on July 8th, 1917, so it evidently flowers in Cornwall about the same time. Its growth is similarly late in starting. Except for R. AURICULATUM —a Rhododendron by itself as regards lateness of growth and flower—it, R. SEROTINUM and R. MAXIMUM flower habitually later than any others, although the last flowers of some garden varieties coincide with their early ones. The introduction of R. DISCOLOR has given the opportunity to produce a race of hybrids of the Fortunei type later flowering than any we have at present. In fact, the foundations of this race have already been laid.

Under the name of R. KIRKII there is in a few gardens a Rhododendron belonging to the Fortunei group. We have it at Kew, and Mr. Millais mentions it in his book, on page 169, as having flowered in his garden in July, 1915. I do not know how the name originated ; I cannot find that one such has ever been published, but I suspect it originated in Messrs. Veitch's nursery at Coombe Wood, probably as a provisional name for a batch then thought to be distinct. Although I have not seen it in flower, I feel certain that it is nothing but R. DISCOLOR. The leaves match those of that species, and it flowered with Mr. Millais in July, which is the season of R. DISCOLOR and not that of R. HOULSTONII, with which he compares it. Moreover, the Wilson numbers given by Mr. Millais, viz., 885 and 885B, are those of R. DISCOLOR.

Several crosses with DISCOLOR as one parent have been made at Kew, chiefly with such garden varieties as " PINK PEARL," " STRATEGIST," " DONCASTER," " MEMOIR," etc. But it has also been hybridised with some species— GRIFFITHIANUM (Aucklandii), MAXIMUM, and OCCIDENTALE, the last of course an Azalea.

R. SEROTINUM, *Hutchinson.*

In 1889, there were received at Kew, from the Jardin des Plantes, at Paris, a few seedlings of Rhododendron under the name of DECORUM. Some were kept under glass and some tried out-of-doors. Under both conditions they showed a strong disinclination to branch, and I remember especially one that grew in the Rhododendron Dell which ultimately became 7 or 8 feet high, but had only some eight or ten growing shoots—a veritable scarecrow of a Rhododendron. To the regret of no one, a storm at last snapped it off. There are still two plants in the Temperate House which show, only not so badly, a similar lanky growth, and make shoots one foot or more in length in a season. One is a fairly presentable shrub, but the other is actually treated as a climber on a pillar and is 12 feet high. In 1905, when I was somewhat younger and more venturesome than I am now, I wrote an article about Chinese Rhododendrons in Robinson's FLORA AND SYLVA. In this article I made some disparaging remarks about R. DECORUM as I then knew it. But afterwards R. DECORUM of Wilson's collecting came into cultivation, and it has now flowered several times. It has proved to be a shrub of sturdy habit and exceedingly attractive in flower. In consequence, I have had rather a bad time about my Flora and Sylva remarks, and expressions

of surprise and reproach have several times been made. The last (and kindest) is in Mr. Millais' great book on Rhododendrons. Yet what I said on the plants which were then purported to be R. DECORUM was strictly true. Fortunately, from my point of view, the old so-called "decorum" of Paris in 1889 proves to be a distinct species which has been named R. SEROTINUM by Mr. Hutchinson, and is to be figured under that name in the BOTANICAL MAGAZINE.

R. SEROTINUM is no doubt closely allied to both DECORUM and FORTUNEI. From the latter it differs by its pubescent stamens; from R. DECORUM it is distinguished by having larger, thicker leaves with an unequally cordate base, and by the corolla having conspicuous stalked glands on the outside. From both species it differs in the gaunt, lanky mode of growth already alluded to, and by the tube of the corolla being spotted and suffused with red inside. It is also distinct in flowering very late in the season, the character on which Mr. Hutchinson's name is based. In the Temperate House at Kew it commences to blossom in July, and last year there were trusses opening in late September, developed of course from flower buds which had formed on the growths of 1917.

The flowers are seven or eight together, each one about 3 inches wide, fragrant, white tinged with rose and spotted in the tube as mentioned above.

R. DECORUM, *Franchet.*

[*syn.* R. SPOONERI, *Hemsley and Wilson*].

David, the French missionary in China, appears to have been the first to discover this fine Rhododendron in the early "eighties" of last century, in Eastern Thibet, at elevations of about 10,000 feet on the mountains, but it was also found about the same time, or soon after, in Yunnan by his fellow-worker, Delavay. As has been shown in the note on R. SEROTINUM, some at any rate of the plants originally raised from seeds sent to Paris by the French missionaries and distributed as DECORUM, are now to be regarded as a distinct species, so that the introduction of all, or nearly all, the plants in cultivation has to be credited to Wilson and Forrest. Wilson sent seeds home to Messrs. Veitch from Yunnan, in 1904-5, and made several other importations during his subsequent journeys. The plants obtained by him and Forrest have proved very attractive to Rhododendron lovers in this country. The flowering season of R. DECORUM seems naturally to be a rather extended one. I have flowering specimens preserved that have been collected during the months of May, June and July. The flowers sometimes open early enough to be caught by frost. They usually measure $2\frac{1}{2}$ to 3 inches across, and I have a few flowers gathered at Caerhays in July, 1911, almost 4 inches wide. The colour varies from almost pure white to a very lovely delicate pink. From R. FORTUNEI this differs botanically in the downy stamens and in the tapered base of the leaf.

R. AURICULATUM, *Hemsley.*

Among all the Rhododendrons introduced from Central and Western China, none stands out with greater distinctness than this. No other cultivated Rhododendron so far as I know habitually starts into growth so late in the

season as it does. It is very curious that a plant from the northern hemisphere should invariably let the spring and even midsummer go by without making the least sign of growth. At Kew it is always mid-July before it commences to move. Once started, however, it completes its growth in very quick time. Its flowering is equally late, and some trusses do not open until August. I have one specimen preserved which was gathered as late as August 24th. The young shoots are furnished with large, often (but not, I think, invariably), crimson scales which soon wither and fall away, but give a brilliant effect while they last. The foliage is large and handsome and is very distinct from that of all the others of this Fortunei group in its hairiness—a character which is especially noticeable on the leafstalk and midrib, and when the leaves are young. The flowers are 3 to 4 inches wide, and so far as I have seen, white, but Wilson describes them also as rosy-red, and they have usually the characteristic seven-lobed corolla of this group, although occasionally it is eight-lobed.

In conversation, Mr. Wilson has told me that although he found it nowhere common in a wild state, its favourite habitat is on the outskirts of woodland where it lives in half shade. I am confident it will do best in this country where it has some similar protection from full sunshine. So far, at Kew, it has flowered only on growths on the lower and shaded part of the plant, but that does not necessarily imply that shade is conducive to flowering.

R. AURICULATUM was discovered by Prof. A. Henry over thirty years ago, but was not introduced until 1901, when Wilson sent seeds, collected in Western Hupeh, to Messrs. Veitch. It occurs as a tree occasionally 20 to 30 feet high.

In 1917, when AURICULATUM was in bloom at Kew, some belated flowers of R. PONTICUM were found with whose pollen it was fertilized. The seedlings raised seem to show that a hybrid has been produced. Such a hybrid, if it combines some of the redundant vigour of PONTICUM with the late flowering of AURICULATUM ought to be valuable. The only other cross we have been able to make has been with SEROTINUM. Attempts with R. (Azalea) OCCIDENTALE have hitherto failed.

February, 1919. W. J. BEAN.

KEY TO THE FORTUNEI GROUP OF RHODODENDRONS.

I. Stamens glabrous.

a. Leaves hairy, especially on petiole and when young. Flowers in late July and August; pedicels hairy .. AURICULATUM.

b. Leaves glabrous, cordate or rounded at base.
Glands on pedicels stalked; leaves very large and leathery, conspicuously auricled at base .. .. HEMSLEYANUM.
Glands on pedicels sometimes absent and often sessile; leaves rounded or slightly cordate at base, corolla glandular outside .. .. FORTUNEI.
Glands always present, sessile; leaves rounded at base; corolla glabrous outside, widely bell-shaped .. VERNICOSUM.

c. Leaves glabrous, cuneate at base.
Calyx distinctly lobed; pedicels quite glabrous; flowers in June and July.. .. .. DISCOLOR.
Calyx obsolete; pedicels hairy-glandular; flowers in May .. .. HOULSTONII.

II. Stamens pubescent or glandular.

Corolla smooth outside; flowers in spring and summer DECORUM.

Corolla glandular-warty outside; leaves thick and leathery; flowers in late summer and autumn .. SEROTINUM.

W. J. BEAN.

February, 1919.

THE CULTIVATION OF RHODODENDRONS AT LEONARDSLEE.

Our Honorary Secretary has asked me to write a few notes on the cultivation of Rhododendrons, I will begin by saying that as all gardens differ as to soil and climate, what I say refers entirely to my own garden, and my methods may not be successful in other places.

This garden, near Horsham, in Sussex, is situated about 275 feet above the sea level. The portion where the Rhododendrons are chiefly planted is a valley about half a mile in width in the widest part, measuring from the top of the ridge to the top of the ridge on the opposite side, and sloping downwards to the South-East. Speaking generally, it is planted with trees of a density which can best be described as "open woodland"; the high ground at the sides being thickly covered for the purpose of shelter. The natural growth is heather, bracken, and birch trees. The average rainfall from 1882 to 1912, was 29·65 inches. Of frost 28 degrees were registered by the exposed thermometer on the 5th of January, 1894, and again on February 7th, 1895, and on February 3rd, 1912, 21 degrees.

On the top of the hill near the house, where I like to keep the choicer species, the soil is stiff and heavy.

Before planting a Rhododendron it is advisable to dig out a hole in the trenched ground much larger than would at first sight appear necessary. The soil is thrown out to the back of the border and the hole filled with a compost of peat, turfy loam and coarse sand. A fork is used to stir it up and to incorporate the mixture thoroughly with the natural soil at the bottom and sides of the hole. The Rhododendron is then planted and made firm. A thick mulching of dead leaves is certainly beneficial as it keeps off the burning sun and parching winds from the roots, besides acting as a protection from frost.

In most books on gardening leaf-mould is recommended; this may be right in many gardens, but we do not succeed with it here. We find that it makes the soil sour and that the plants become sickly when planted in it.

On the other side of the valley the soil is light and sandy, and in summer it becomes dust-dry so that the plants suffer; even heavy and frequent watering seems to make little difference and consequently the Rhododendrons did not thrive. However, these plants are looking very well now; they have been dug round and turfy loam placed next to the roots, and when a plant looked very yellow a light mulching of farm-yard manure has been given, usually with good effect. This shows how gardens differ, for I believe that in Cornwall most growers consider that farm-yard manure is not at all suitable for Rhododendrons.

The larger-leaved kinds such as R. FORTUNEI and R. AUCKLANDII hybrids seem always to be benefited by a mulching of manure, but much more care must

be taken in its use with such kinds as R. THOMSONII and R. CAMPYLOCARPUM, which seem more delicate. Rhododendrons are usually easy to keep in health if looked after and disbudded when this is required. Some kinds, such as R. CAMPYLOCARPUM, may be killed by allowing them to flower year after year without taking off any of the buds ; and when once a Rhododendron gets into bad health it is often a difficult matter to coax it back again to a thriving state. Usually the best way is to cut it down and then transplant it to some other position and soil. It is wonderful how vigorously some plants will grow after having been treated in this way. It is to be noted, however, that after being cut down some species of Rhododendrons will not break again, or very weakly. I would not cut down R. THOMSONII, AUCKLANDII, FALCONERI, EXIMIUM, or GRANDE.

Most of my Rhododendrons are grown in the half-shade of trees, and seem to do well.

Some of the smaller sorts—R. FALCONERI, INTRICATUM, RACEMOSUM, SETOSUM, ELAEAGNOIDES, SALIGNUM, CHAMAECISTUS, etc., are growing in my rock garden in fully exposed positions and are doing equally well.

Large-leaved kinds require shelter from wind, otherwise in stormy weather the leaves are apt to get broken or torn off.

Some Rhododendrons, such as AURICULATUM and EXIMIUM, are very late growers, and I try to plant them where they will be shaded from the hot sun, otherwise the tender shoots would very probably be scorched.

The leaves of R. FULGENS are often burnt if exposed to full sunshine, but the greater number of these plants will stand a full exposure if only the roots are protected therefrom by mulching or otherwise. When the plants have become strong and bushy and the branches shade their own roots they will need no further care and the hottest sun will do no harm.

R. KAMTSCHATICUM and R. CHRYSANTHUM are reported to be difficult subjects. The former grows and flowers well in the open rock-garden in peaty soil ; but I have not yet been able to make a success of R. CHRYSANTHUM. I have some little hopes of these plants now that they have been planted in half-shade in a mixture of peat and sphagnum, with live sphagnum growing between the plants. The bed is below a tap so that at any time the bed can be properly irrigated.

I may add to what I have said above that I do not think any harm can possibly be done by using leaves and leaf-mould for *mulching*. With regard to its use round the *roots, I know of one garden near by where the experience is the same as mine ; and I know of another garden not much further off where, on the contrary, leaf-mould has been used on a considerable scale and with, apparently, complete success.

EDMUND GILES LODER.

*It is much to be hoped that this question as to the value of leaf-mould may be the subject of experiments in the near future. C.C.E.

LIST OF RHODODENDRON SPECIES GROWING AT LEONARDSLEE, NEAR HORSHAM, SUSSEX, SEPTEMBER, 1918.

INTRODUCTORY NOTE.

Sir Edmund Loder very kindly consented to compile the following list of Rhododendron species growing in his garden at Leonardslee.

In reply to my enquiries, Sir Edmund, in a letter dated 24th February, 1919, writes :—

"I call R. ARBOREUM VAR. CINNAMONEUM the same thing as R. ARBOREUM ALBUM. This is a distinct thing, described by Hooker as having red underneath the leaf and spotted white flowers. There are very many varieties of R. ARBOREUM with white flowers, and these I call R. ARBOREUM VAR. ALBUM.

As regards R. COOMBENSE, the business is complicated, but I think I made it out once :—

R. YANTHINUM, *Bureau et Franchet.* Jour. de Bot. V., 94. [*Syn.* R. CONCINNUM, *Hemsl. et Wils.* in Kew Bull., 1910, 115, *not* R. CONCINNUM, *Hemsl.*]

R. CONCINNUM, *Hemsl.* Jour. Linn. Soc., XXVI., 21. [*Syn.* R. COOMBENSE, *Hemsl.*, in Bot. Mag., T. 8280].

As regards R. JAPONICUM, my plant is an azalioid and was raised from seed sent by Professor Sargent (No. 7670), and may be R. MOLLE.

R. BAILEYI was raised from seeds collected by Colonel Bailey, in Bhotan, near Nyasjang ; almost all the other plants raised from seeds sent by him look like varieties of R. ARBOREUM."

Regarding R. JAPONICUM, Professor Bayley Balfour, writing to me on March 1st, 1919, says : "The name R. JAPONICUM was tentatively given by Suringar in 1908 to the old R. MOLLE, *Miquel.* The American authorities have taken up this name. (See Plantae Wilsonianæ, I., p. 549.) The name R. JAPONICUM was given by Schneider, in 1909, to the old R. METTERNICHII, *Sieb. et Zucc.*, and this name has been taken up by Kew in the Botanical Magazine."

It has for some time been doubted whether any old plants (the true wild form) of either R. MOLLE or R. SINENSE are in this country, and in answer to a question as to this, Professor Bayley Balfour writes under the same date : "The two questions which you ask about old plants of R. MOLLE and of R. SINENSE I cannot answer. The hope of getting such an answer was the reason of the delay in the publication of a paper which I wrote three years ago for the Botanical Society of Edinburgh, dealing with this question of R. JAPONICUM. Regarding the relationship between R. MOLLE and R. SINENSE

you may care to read the enclosed translation of a paper by Suringar, published in GARTENFLORA, in 1908, in which he discusses the questions of their difference, their prevalence in cultivation and their nomenclature. I should take it that the R. JAPONICUM sent by Professor Sargent last year is the R. JAPONICUM of Suringar, i.e., the true R. MOLLE, but a glance at the leaf taking the characters given in Plantæ Wilsonianæ, and by Suringar in his paper will tell you at once whether it is R. MOLLE or R. SINENSE."

Sir Edmund Loder tells me that Professor Balfour has examined his plant of nigropunctatum, and is of the opinion that it is not the true species. (See also Rhod. Soc. Notes, Vol. I., p. 149.)

The thanks of the Society are due to Sir Edmund Loder for the trouble taken to get out this list.

C. C. E

adenogynum
adenopodum
*æruginosum
albiflorum
*Albrechtii
ambiguum
Amesiæ
amoenum
Anthopogon
anthosphærum
apodectum
arborescens
†arboreum
arboreum "Sir Charles Lemon"
†arboreum album
(*syn.* cinnamoneum)
arboreum var. Kermisinum
(blood red)
argenteum (*syn.* grande)
*argyrophyllum var. cupulare
Augustinii
auriculatum
austrinum
†Baileyi
barbatum
*charianthum
Boothii (tender)
brachycarpum
bracteatum
Brettii
(*syn.* longesquamatum)
bullatum (tender)
calendulaceum
californicum
calophyllum
calophyllum var. tubiflorum
calophyllum var. virginale
calophytum
campanulatum
*camelliæflorum
campylocarpum
campylogynum
candidum
carolinianum
catawbiense
caucasicum
cephalanthoides microforme
cephalanthum
*Chamæcistus
(*syn.* for Rhodothamnus
Chamæcistus)
‡Fortunei Spooneri

* Not in the Caerhays List, Rhod. Soc. Notes, Vol. I., p. 132. C.C.E.
† See Introductory Note, pp. 197, 198.
‡ See Note upon the Fortunei group, pp. 187–193. C.C.E.

chartophyllum
chrysanthum
ciliatum
cinnabarinum
*cinnabarinum var. blandfordiæflorum
*cinnabarinum var. intermedium
cinnabarinum var. Roylei
†concinnum, *Hemsl.*
coreanum
crassum
cuneatum
cyanocarpum
Dalhousiæ (tender)
dauricum
dauricum sempervirens
Davidsonianum
decorum
Delavayi
dianthiflorum
dichroanthum
dilatatum
discolor
Edgeworthii (tender)
euanthum
elæagnoides
*eriogynum
*erubescens
eximium
Faberi (*syn.* Pratti)
Falconeri
Fargesii
fastigiatum
ferrugineum
fictolacteum, *Balf. f.*
fictolacteum (5843 Forrest)
fictolacteum ? (4254 Wilson)
flavidum (*syn.* primulinum)
flavum
floribundum
*Fordii
formosum (*syn.* Gibsoni)
Fortunei
‡Fortunei Kirkii
‡*Fortunei lucidum
fulgens
glaucum
Grievei (old hybrid)
Griffithianum (*syn.* Aucklandii)
habrotrichum
Hanceanum
heliolepis
*hyphenanthum
hippophæoides
hirsutum
Hodgsonii
Hookeri
Houlstonii
Hunnewellianum
hylothreptum
hypoglaucum
impeditum
*indicum
insigne
intricatum
irroratum
†*japonicum
kamtschaticum
Keiskei
Keysii
*Kingianum
*Kotschyi
lacteum, *Franch*
lanatum
ledifolium
ledoides
lepidotum
linearifolium
longistylum
lutescens
Maddenii (*syn.* Jenkinsii)
*macrosepalum
maximum
melinanthum
Metternichii
*Metternichii pentamerum
micranthum
†molle (=japonicum)
monosematum

* Not in the Caerhays List, Rhod. Soc. Notes, Vol. I., p. 132. C.C.E.
† See Introductory Note, pp. 197, 198.
‡ See Note upon the Fortunei group, pp. 187–193. C.C.E.

moupinense
mucronulatum
neriiflorum
†*nigropunctatum ?
niphargum
nivale
niveum
nudiflorum
Nuttallii (tender)
*obovatum
oleifolium, *Franch.*
*occidentale
oreodoxa ?
oreotrephes
ovatum
*oxyphyllum (tender)
pachytrichum
parvifolium
pentaphyllum
pholidotum
plebeium
polylepis
ponticum
*procumbens
(=Loiseleuria procumbens)
prostratum
*proteoides
Przewalskii
*punctatum
quinquefolium
racemosum
rhantum
*Rhodora
rhombicum
Ririei
rotundifolium (*syn.* orbiculare)
rubiginosum
rupicolum
*salignum
Sargentianum
Schlippenbachii
Searsiæ
serpyllifolium
setosum
†sinense (=800 Wilson),
orig. introduced by Fortune)
sinogrande (tender)
sinolepidotum
Smirnowii
Souliei
spinuliferum
stamineum
strigillosum
sublanceolatum
sutchuenense
taliense
Thayerianum
Thomsonii
Traillianum
trichocladum
triflorum
*Tschonoskii
Ungernii
Vaseyi
*Vialii
Victorianum (hybrid of Dalhousiæ and Nuttallii, tender)
villosum
*Wallichii (*syn.* campanulatum var. Wallichii)
Wasonii
Watsonii
Weldianum
Wightii
Williamsianum
Wiltonii
†yanthinum (=concinnum, *Hemsl. et Wils.*)
*yunnanense
zaleucum

September, 1918.

EDMUND GILES LODER.

* Not in the Caerhays List, Rhod. Soc. Notes, Vol. I., p. 132. C.C.E.
† See Introductory Note, pp. 197, 198.

THE SPELLING OF RHODODENDRON NAMES.

LETTER FROM LIEUT.-COLONEL SIR DAVID PRAIN, C.M.G., WITH A MEMORANDUM FROM THE KEEPER OF THE HERBARIUM AND LIBRARY, ROYAL BOTANIC GARDENS, KEW.

Royal Botanic Gardens,
Kew, Surrey.

Dear Mr. Eley,

As regards the questions of nomenclature I cannot do better, I think, than enclose in original a memorandum by the Keeper of the Herbarium which might be taken as an authoritative statement of the effects of compliance with the Vienna Code.

With kind regards, Yours sincerely,

14*th March*, 1919. D. PRAIN.

MEMORANDUM RESPECTING THE SPELLING OF RHODODENDRON NAMES.

Taking the recommendations of the Vienna Code of 1905 as a basis, the following rules would have to be adhered to :—

1. Recomm. XI. Specific name from the name of a man.
   (a) When the name ends in a vowel, the letter *i* is added.
   (b) When the name ends in a consonant, the letters *ii* are added, except when the word ends *er*, when *i* is added.
   (d) When specific names taken from the name of a person have an adjectival form a similar plan is adopted.

According to these we would have for instance :—

(a) Rhododendron BLUMEI, *Nutt.* and Rhododendron VASEYI, *A. Gray.*
(b) Rhododendron KENDRICKII, *Nutt.* and Rhododendron HOOKERI, *Nutt.*
(d) Rhododendron BROOKEANUM, *Low.* and Rhododendron BLANDINIANUM, *Martr.*

Recomm. XII. The same applies to the names of women. These are written in the feminine when they have a substantival form, e.g., Rhododendron CHAMPIONÆ, *Hook.*

2. Recomm. X. Specific names begin with a small letter, except those which are taken from names of persons (substantives or adjectives), or those which are old generic names (substantives or adjectives).

e.g., Rhododendron AFGHANICUM, *Aitch. and Hemsl.*, Rhododendron BLANDINIANUM, *Martr.*, Rhododendron ALBRECHTII, *Maxim.*, Rhododendron RHODORA, *J. F. Gmel.* (because of the old generic name Rhodora, *Linn.*), and Rhododendron ANTHOPOGON, *D. Don.* (meant as a descriptive adjective).

13*th March*, 1919. O. STAPF.

Vol. I., No. V., 1919.

The Rhododendron Society Notes.

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The Rhododendron Society Notes.

NOTES

CONTRIBUTED BY

MEMBERS OF THE SOCIETY

FOR THE YEAR

1919

All communications regarding the publications of the Rhododendron Society should be made to Charles Eley, East Bergholt, Suffolk.

The Rhododendron Society Notes.

MEMBERS' NOTES FOR THE YEAR 1919.

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To facilitate its consideration at the earliest possible date, a Note by George H. Johnstone, suggesting research regarding old and the registration of new hybrids of Rhododendrons was, with his consent, circulated amongst the members of the Society in the Spring of 1920. Reference to this Note is made here for the purpose of record.—C. C. E.

The Rhododendron Society Notes.

SOME LARGE-LEAVED RHODODENDRONS.

In response to the request of the Secretary of the Society, I am to write about "Some Large-leaved Rhododendrons," not that I imply his prescription of the subject, but it happened that during the autumn I had been working out some of Forrest's large-leaved forms which seemed to form a basis for such an article as was desired. Anyone writing on this theme a few years ago would have had a limited field of species to pass in review. To name R. ARGENTEUM, *Hook. f.*, R. EXIMIUM, *Nutt.*, R. FALCONERI, *Hook. f.*, R. GRANDE, *Wight*, R. HODGSONI, *Hook. f.*, all Himalayan species is to complete the list of forms then known. Now we are in touch with more than five times the number, chiefly through the exploration of Western China; the Himalayas have yielded so far but one additional name, R. DECIPIENS, *Lacaita*. And we are not yet at the end of them either in China or in the Himalayas. The forms from the latter region have still to be critically sifted. From China the later months of the year have brought to Mr. J. C. Williams from Forrest advance material of three or four new species, the last one to arrive (in only a few leaves as yet) under the apt name R. GIGANTEUM, for its description tells that it is a tree about 80 feet high with a bole 7 feet 9 inches in girth at 5 feet from the ground. We learn from all the specimens of Rhododendron that have come to us that the development of large leaves has happened in more than one phylum of the genus. In some phyla they are only occasional, in others dominant, and it is the latter which include the Himalayan species mentioned above and which come to mind when large-leaved Rhododendrons are referred to.

In 1853 Nuttall brought together the Himalayan Rhododendrons with large leaves in a group of the genus to which he gave the name Sciadendron, and he recognised correctly the associated characters of small calyx, bell-shaped corolla with 8-10 lobes, 12-18 stamens and 12-18-chambered capsule. This grouping was followed in the Genera Plantarum and also in the Flora of British India. Our extended knowledge of the genus shows us that this grouping is partially phyletic. Members of two phyla are included in Sciadendron—R. EXIMIUM, R. FALCONERI and R. HODGSONI belong to one phylum, R. ARGENTEUM and R. GRANDE to another. We may designate the first of these phyla the Falconeri Series, the latter the Grande Series, after the oldest-named species included in each. It was to have been my task to endeavour to associate with these older known species the newer ones with which we have become acquainted and to indicate salient features characterising these series and distinctive of the several species belonging to them, but the number of species claiming attention that have come upon the horizon have compelled me to restrict the performance of my task to an account of one Series only—the Falconeri Series—leaving the GRANDE and other Series to be dealt with on some other occasion.

THE FALCONERI SERIES.

RHODODENDRON FALCONERI itself is so well known to all who are interested in Rhododendrons that with assurance I may ask readers of this story to keep

this species before them as a typical illustration of the characters by which the Falconeri Series is distinguished. These are :—

Vegetative Characters. Shrubs or trees with stems and branches from which the bark flakes off leaving a pinkish tinted or cinnamon-coloured, often somewhat glaucous surface. The young branches stout, when young tomentose, the tomentum white to rich brown. The leaves thick and large ; oval, oblong-oval, or oboval, or oblanceolate, rounded at top ; blunt, rounded, cordate or tapered at the base ; the margin often recurved. Rough wrinkled more or less reticulate on the dark or paler green upper convex surface, when expanding coated there with a tomentum which usually falls off leaving no trace, or persists as a withered coating. Clothed on the concave under surface which is often alveolate with tomentum which varies from dark brown to whitish-grey and is composed of two strata. An upper stratum of cup-shaped stalked hairs, the stalks of many cells—their form varying from broad open bowls through bell-shaped to funnel-shaped chalice or vase types, broad or narrow at the mouth which may be merely slightly wavy or be prolonged into a short fringe or have long streamer-like hair-branches passing out from it. According to the shape of the cup the cells composing its wall differ. Isodiametric in the bowls and bell-shaped cups they are elongated vertically in the narrower funnel-forms. And then in some of the larger funnels or chalices additional hair-branches may spring from the stalk and from the wall of the cup as well as from the margin of the mouth. The construction of these cup-hairs accounts for the differences observable on the under-surface of the leaves. When they are open bowls without or with very slight marginal fringe, and these are characteristic of the grey-coloured indumentum, the surface seems to have a number of isolated pits over it, and when the cells of the cup-walls dry and wrinkle they scintillate prismatic colours ; where there are cups with extended marginal branches these by their interlacing give the woolly look so characteristic of many species, and this is common in the brown and cinnamon-coloured indumentum. As the leaf oldens one of two fates befalls these cup-hairs. They may persist unchanged save in darkening of colour, and the leaf-surface to the end retains its earlier character. This in particular where the indumentum is woolly. Or the cup-hairs may fall off sometimes over the whole surface save at the sides of the midrib and primary veins—this very marked where the indumentum is grey—and as this process of depilation proceeds the separate individual hairs, somewhat shrunken it is true, may be easily recognised, their isolation in the younger stages of the leaf is in the woolly leaves not always easily descried. When the hairs of the upper stratum fall off the under stratum comes into view always as a smooth greyish or white pellicle. It is never detersile and consists of rosette-hairs on short stalks, the unicellular branches always short and varying in number and taking on a vesicular character as they olden when the branches of adjacent hairs become agglutinated and thus create a close surface-skin over the leaf. This understratum is present also on the leaves from which the cup-hairs do not fall, and can be readily made visible by scraping off the upper stratum. I dwell on these characters of indumentum because the cup-hair is diagnostic of the Falconeri Series. I know of it in no other series. It gives an easily ascertained character by which to separate members of the Falconeri

Series from those of the Grande Series. But I interject this warning : the under surface of the leaf of one of the Falconeri Series which has detersile indumentum may in the older stages, when the smooth grey pellicle of under-stratum is visible all over it, present some resemblance to the under surface of the leaf of one of the Grande Series. Careful examination, however, will always show a few of the cup-shaped hairs lurking under protection of the midrib or primary veins and prevent mistake in identification.

Everyone knows the conical terminal bud which appears in R. FALCONERI in the midst of the circle of leaves. It takes its shape from the few outer scale-leaves enclosing it. These have thick cushion-bases from which the long tapered sharp-pointed upper part of the scale-leaf is prolonged, the tips often slightly twisted around one another. Within ,these outer scale-leaves are the oblong overlapping ones sealing the bud. This type of bud is if not characteristic of the Falconeri Series as a whole, certainly conspicuous in the largest-leaved forms in it. We do not know the buds in several of the species and on our young plants of R. GALACTINUM the outer bud-scales of the terminal foliage-bud are short. I do not say it is not to be found elsewhere—we know so few species of Rhododendron as yet in their mature state. This form of bud may be either a foliage-bud or a flower-bud. I know of no mark by which to make a sure prognosis of the destiny of a terminal bud in the Falconeri Series until it begins to swell in growth. The lateral buds are different from the terminal. They never have these outer tailed scale-leaves. They are foliage-buds. Yet on occasion I have seen one of these lateral buds develop into a flower-truss whilst the terminal became a foliage-shoot.

THE FLOWER AND FRUIT. We are justified in making the broad statement that large truss and large flower are characters of the Falconeri Series, some are less large than others. The truss is a more or less racemose umbel, the pedicels are long and tomentose, the bracts silky, the bracteoles very short. The oblique form of the flower with a more convex slightly ventricose upper side and set on at a conspicuous angle to the pedicel is characteristic. The calyx is hardly visible, only a series of small teeth usually representing it. The corolla fleshy bell-shaped is most commonly creamy-white or pale-yellow with some degree of crimson blotching at the base on the posterior side within and sometimes spotted above the blotch, occasionally the crimson-coloration is absent, frequently the corolla is rose or rose-pink, more rarely carmine to purple. The corolla is mainly tube, the lobes, eight to ten, rarely seven, are relatively short and overlap, in the end recurving more or less. The stamens, from 14 to 20, are always much shorter than the corolla, are unequal in size and bunched around the style, their filaments slightly widened to the base and either puberulous or without hairs bear dark-coloured anthers rather small for the size of flower. The ovary-chambers vary in number from 7 to 18, and the outer surface may be glandular only, the glands short stalked and very sticky, or have glands and tomentum mixed or may be only tomentose and profusely so, this last the commonest condition ; and the hairs of the tomentum are differential, usually some form of fasciate hair with long or short stalk and varying form of branches, or flock-like hairs with fat, short pointed branches. The style which is stout, shorter than the

corolla and always curved upwards at the top, is glabrous but in species which have a glandular ovary the glands may extend for a short distance up the lower part of the style. The stigma is a broad, flat or concave disc distinctly grooved on the top into many segments. The capsule always slightly curved shows on the outside the remains of the ovarian covering, and dehisces from apex to base by valves of unequal breadth, sometimes narrow of one carpel, sometimes broader of two or more carpels united together. I have not seen the valves falling away entirely from the central septal column. The brownish seeds, some 3 mm. or more in length, are flattened and always have a circumferential winged aril as well as a more or less developed crest or fringe at both the chalazal and the hilar extremities.

Of plants belonging to the series of which we have knowledge sufficient to entitle us to describe them as species, there are 14, and the following is a list of them :—

Name and date of description.	Distribution.	Discoverer.
R. ARIZELUM, *Balf. f. et Forrest* (1920)*	W. Yunnan : Shweli-Salween divide, 11-12,000 ft.	Forrest (1917)
	N.E. Upper Burma : Hpimaw Pass, 95-10,500 ft.	Farrer (1919)
R. BASILICUM, *Balf. f. et W. W. Sm.* (1916)	W. Yunnan : Shweli-Salween divide, 11,000 ft.	Forrest (1913)
R. CORIACEUM, *Franch.* (1898)	N.W. Yunnan : Mekong-Salween divide.	Soulié (1893)
	S.E. Tibet : Doker-la, 12,000 ft.	Forrest (1917)
R. DECIPIENS, *Lacaita* (1916)	W. Sikkim, 10-11,000 ft.	Lacaita (1913)
R. EXIMIUM, *Nutt.* (1853)	Bhutan : Oola Mts., 10-11,000 ft.	Booth (before 1853)
R. FALCONERI, *Hook. f.* (1849)	Bhutan	Griffith (1837-38)
	Sikkim, 10,000 ft.	Hooker f. (1848)
R. FICTOLACTEUM, *Balf. f.* (1916)	N.W. Yunnan, both East and West.	Delavay (1886)
	S.W. Szechwan : Mu-li Mts., 12-13,000 ft.	Forrest (1918)
R. GALACTINUM, *Balf. f.*	W. Szechwan	Wilson (1910)
R. HODGSONI, *Hook. f.* (1849)	Bhutan	Griffith (1837-38)
	Sikkim, 10-12,000 ft.	Hooker f. (1848)
R. MEGAPHYLLUM, *Balf. f. et Forrest* (1920)*	W. Yunnan : Shweli-Salween divide, 10-11,000 ft.	Forrest (1918)

* Description of this species will appear in an early number of Notes from the Royal Botanic Garden, Edinburgh.

Name and date of description.	Distribution.	Discoverer.
R. PREPTUM, *Balf. f. et Forrest* (1920)* ..	N.E. Upper Burma : N'Maikha divide, 11,000 ft.	Forrest (1919)
R. REGALE, *Balf. f. et Ward* (1920)*	N.E. Upper Burma : Htawjaw, Valley of Naum-Chaung, over 10,000 ft.	Ward (1914)
R. REX, *Léveillé* (1914) ..	N.E. Yunnan : Mt. Io-chou, 3,200 m.	Maire (1911)
R. SINOFALCONERI, *Balf. f...* (1916)	S.E. Yunnan : N. of Mengtsz, 9,000 ft.	Henry (before 1898)

RHODODENDRON ARIZELUM, *Balf. f. et Forrest.*

This species was discovered by Forrest in June, 1917, at an elevation of 11-12,000 feet, on the Shweli-Salween divide in Western Yunnan. He describes it as a shrub attaining some 20 feet in height bearing fleshy pale-yellow flowers with rose or crimson at the base. The specimens first collected and also those of a later gathering in July, 1917, are in full flower, suggesting therefore a late-flowering species for our gardens when it comes into cultivation, as it will from Forrest's seeds. Plants of the species were found in April, 1919, by Farrer, as one of the prevailing Rhododendrons at 9,500-10,500 feet elevation on the Hpimaw Pass in N.E. Upper Burma, a station not far to the west of Forrest's area of collecting, and he speaks of it as a low many-branched tree with thick trusses of dead creamy-white flowers, without scent, just coming into flower on April 20th. Its flowering period would appear to be a prolonged one. The leaves of the species are smaller—at most in our specimens 18 cm. long by 8 cm. broad—than in some of the members of the series, with the wrinkling of the upper surface only slightly developed. The underleaf surface is smooth, densely covered all over (midrib and primary veins included) in a bright rusty indumentum which seems to be very persistent. The cup-hairs of the upper stratum of indumentum are of the funnel-type with short pluricellular stalk and the cup-wall is built up of elongated cells and is ridged by bands of thicker-walled ones, from which and from the margin of the cup many branches proceed. So many of these branches are there the cup-form sometimes is obscured. The general surface is a woolly one through interlocking of these hairs. The flower-truss has some 15 or more flowers, when young forming a globose bud. The corolla is of fair size about 4.5 cm. long and 8-lobed. The filaments of the 16 stamens are slightly puberulous above the base. The ovary has 12-15 chambers, its outside densely clad with short-stalked branched hairs forming a close tomentum, each hair comparable in form to a pollard willow with stem and erect ascending branches. The ovary is never glandular. The capsule is curved about 3.5 cm. long and 1 cm. in diameter with orange-coloured tomentum. The species is the nearest approach amongst the Chinese forms to R. FALCONERI of the Himalaya, much nearer than the plant named R. SINOFALCONERI. It is, however, as are all

* Description of this species will appear in an early number of Notes from the Royal Botanic Garden, Edinburgh.

the Chinese species of the Falconeri Series (except R. EXIMIUM), distinguished from R. FALCONERI by its eglandular ovary. Its cup-hairs, quite of the type of those of R. FALCONERI, are smaller than in that species.

RHODODENDRON BASILICUM, *Balf. f. et W. W. Sm.*

Since his first finding of this species in 1912 on the Shweli-Salween divide at 11,000 feet elevation, Forrest has met with it on several occasions in the same region. From the earlier collecting plants have been raised, which ought to flower within a few years from now, giving us trusses of fleshy pale-yellow flowers. The plant is described as a bush of 10-30 feet. The species has leaves as large as or larger than those of R. FALCONERI itself, 25 cm. long by 13 cm. broad, wrinkled above but not so deeply honeycombed below as in that species. The underleaf indumentum is pale cinnamon-coloured, the hairs of the upper stratum beautifully developed as funnel-shaped cups with stout stalk expanding into a cup-wall of vertically elongated cells, the cup-margin spreading as a fringe, the segments of which run out into long fibril-like hairs, of which there may be many. This hair-stratum seems to be fairly persistent, falling off only in patches when it does disappear, and it gives the surface a slightly woolly look. The flower-truss is large with some 25 flowers in each, of which the corolla is not of the largest in the series, about 3.5 cm. long. The 16 stamens have glabrous filaments (occasionally a hair or two) and the 12-15-chambered ovary is without glands, but densely covered by cinnamon-coloured fasciate hairs with conspicuous stalks. The capsule, slightly curved, is as much as 4 cm. long and 1.25 cm. broad, and is coated with brown tomentum.

R. BASILICUM is a larger-leaved plant than R. MEGAPHYLLUM its nearest ally, and has different underleaf indumentum, its cup-hairs funnel-shaped with more developed fringe, an ovary with more chambers and a fruit nearly twice the size of that found in R. MEGAPHYLLUM.

RHODODENDRON CORIACEUM, *Franch.*
(*syn.* R. FOVEOLATUM, *Rehder et Wilson*).

Soulié discovered this species in April 1893 at Loukiong near Tseku on the Mekong in N.W. Yunnan. The next record of it is in specimens collected near Tseku and sent home in 1912 by Monbeig. Monbeig's specimens in Kew Herbarium were described by Rehder and Wilson in PL. WILSONIANÆ I (1913) 537 as R. FOVEOLATUM, a name in which they stereotype the appearance of the underleaf indumentum, the cup-like feature of which they recognised. By Forrest also the plant has been found about Tseku, and in 1917 he extended our knowledge of its area of distribution by finding it at an elevation of 12,000 feet on Doker-la in the Tsarong to the N.W. of the previously known stations. Forrest describes the plant as a shrub of 12-20 feet, and the flowers as white flushed-rose with a basal crimson blotch from which radiate upwards crimson spots. The species is marked by two prominent characters, one foliage and one floral—the underleaf indumentum is grey-white, and the corolla has seven lobes. The leaves are long and narrow as much as 28 cm. long and some 6-7 cm. broad,

rarely more and often much smaller, and they are oblanceolate, tapering gradually from apex to base. Frequently they are deflexed on the branch. The upper stratum of underleaf indumentum consists of shallow open bowl-shaped hairs with rounded somewhat bell-shaped base on short pluricellular stalks, the cells of the walls isodiametric and the margin of the bowl without a fringe of branches. It is these open bowls which give the foveolate surface remarked upon by Rehder and Wilson. They are deciduous more or less and leave exposed the whitish pellicle of under-stratum agglutinate rosette-hairs. In R. REX we have the same kind of cup-hairs, and in R. HODGSONI and R. REGALE the form is nearly approached, only in them the base of the bowl is somewhat funnel-shaped, not bell-shaped. The flower-truss is small for the series though there may be as many as 15 flowers. The corolla is small, about 3 cm. long, and the spotting on the rose surface is conspicuous. The filaments of the 14 stamens are most minutely puberulous. The ovary is 7-chambered, the chambers wide with very narrow septa, and outside the ovary is densely coated with peculiar fleshy stalked flock-like few-branched hairs (the branches curling on themselves) which are most distinctive. The curved capsule is narrow, about 3 cm. long, 6 mm. in diameter, sparsely clad with red-brown hairs.

Forrest got seed of this in 1918, if not before, and we may expect therefore to have the plant in cultivation. The young shoots on the dried specimens resemble somewhat those of R. NIVEUM, *Hook, f.*, but that species has no close phyletic relation.

RHODODENDRON DECIPIENS, *Lacaita.*

In May 1913 Lacaita collected in flower in Western Sikkim the plant which he names thus at an elevation of 10-11,000 feet, adding to his own specimens a fruiting one collected later in the year by Ribu for the purpose of his description in the Journal of the Linnean Society, of December, 1916. He describes it as arborescent with leaves elliptic or obovate-elliptic, at base narrowed or subcordate, 20-22 cm. long, 9-11 cm. broad, rugose above (but less so than in R. FALCONERI) ferruginously tomentose below when young, the upper layer detersile leaving a pale as it were lepidote indumentum not altogether unlike that of R. HODGSONI. Flower-truss 25-30-flowered. Corolla of the form and purple-rose colour of R. HODGSONI. Staminal filaments pilosulous. Ovary tomentose. Capsule 4-5 cm. long, 10-13 mm. broad, intermediate in size to the capsules of R. HODGSONI and R. FALCONERI. "On the spot," he says, "I assumed this, from its colour and general appearance, to be a variant of R. HODGSONI, amongst which it grows promiscuously." On his return he saw more of R. FALCONERI in it, and concludes that whilst approaching R. HODGSONI in foliage the shape of the capsule makes it impossible to assign it to a form of R. HODGSONI, and that it would seem to be rather an undescribed variant of R. FALCONERI with purple-rose (not flesh-coloured) flowers and smaller capsule. It was growing too copiously in its home to be regarded as a hybrid of R. FALCONERI and R. HODGSONI.

I have not examined thoroughly Lacaita's specimens which are now in Kew Herbarium, and indeed their detailed investigation could be pursued usefully only if R. FALCONERI and R. HODGSONI in their several forms were passed in

review at the same time. For that I have not found time as yet, and I doubt if there be sufficient material in the country for the study. But I am indebted to the Director of Kew for kindly supplying me with portions of Lacaita's flowering specimen (No. 464), and of his fruiting specimen which I have analysed, and they show that the plants to which they belong are distinct forms within the phylum. The fruiting plant collected by Ribu, in October, 1913, is only assumed by Lacaita to be his flowering R. DECIPIENS gathered some months earlier, and his qualification is justified. The fruit character attached to R. DECIPIENS does not belong to it. Ribu's fruiting plant is in underleaf indumentum near to R. FALCONERI with perhaps some divergence. In R. DECIPIENS Lacaita saw correctly features of R. HODGSONI in the underleaf indumentum. His words " quasi-lepidotum " refer to the characteristic agglutinate isolated cup-hairs such as are found in R. HODGSONI. These cup-hairs in R. DECIPIENS are many of them those of R. HODGSONI or very near them, but they are mixed with others that recall those of R. FALCONERI, and there would seem to be therefore constructional ground for the suggestion that we have here a natural hybrid. Much more investigation is required before a certain opinion on this question can be expressed. Meanwhile I introduce here Lacaita's R. DECIPIENS as one of the Falconeri Series without further comment, but would suggest that growers of R. FALCONERI and R. HODGSONI should look at their plants for forms which may match this one. One hears of the occurrence of purple and rose-coloured flowers on plants which have the porte of R. FALCONERI but which are not R. EXIMIUM and it may be that amongst these R. DECIPIENS will be found, for the profusion of the plant in its habitat favours the possibility of the inclusion of its seeds in packets of those of its comrades.

RHODODENDRON EXIMIUM, *Nutt.*

[Figured as R. FALCONERI VAR. EXIMIUM in BOT. MAG. (1893) t. 7317].

R. EXIMIUM, discovered before 1853 by Booth " growing amidst ice and snow," at an elevation of 10-11,000 feet in forests on the rocky ridge and spurs of the Oola Mountains in Bhutan, and forming a stately tree 30 feet in height, is a plant of cultivation with which Members of the Society will have better acquaintance than I have, for we have no large plants of it at Edinburgh. It is an offshoot from the immediate phylum of R. FALCONERI, and there is the question, often discussed, should it be treated as a distinct species or as only a variety of R. FALCONERI? If we knew more of the aggregate we call R. FALCONERI we should be in better position to appraise the value of characters. The combination of prominent characters upon which I have relied in the past for diagnosis of R. EXIMIUM are these; the persistently bearded petioles, the rose or pink-tinted flowers, and the densely glandular ovary without any indumentum hairs and with the glands extending upwards for some distance over the lower part of the style. To these another derived from the cup-hairs of the underleaf indumentum has to be added. In R. EXIMIUM these are sessile long slightly funnel-shaped narrow tubes, the wall composed of much elongated narrow thickish-walled cells and not forming a uniformly bounded mouth to the tube, but split and divided irregularly into coarse much-branched fringed

segments which end in single filaments, often fibril-like, that interlace to make the woolly surface. In R. FALCONERI these cup-hairs are much shorter, more tumbler-shaped, with a wall of less elongated cells, but fringed in a similar manner. The state of our knowledge at this time seems to me to warrant our following Nuttall in treating R. EXIMIUM as a species, and considerations of practical convenience in the garden lead to the same determination. No one seeing R. EXIMIUM and R. FALCONERI, as they are known in our gardens, would call them the same, and have we not the authority of so trenchant a critic of the ways of the Botanist in regard to plant-nomenclature as "W. W." for saying that the gardener abominates botanical varietal names and makes them specific if he can, so that R. FALCONERI var. EXIMIUM has become and will as I think justly remain to the gardener, R. EXIMIUM? It is as Mangles pointed out long ago an illustration of the divergence in form that is met with in Sikkim species as one travels eastwards. In Bhutan it represents the Sikkim R. FALCONERI as in other series, R. ARGENTEUM is represented by R. GRANDE, R. AUCKLANDII by R. GRIFFITHIANUM, and so on.

RHODODENDRON FALCONERI, *Hook. f.*

[Figured in Rhod. Sikkim Himal. (1849) t. X; Fl. des Serres V. (1849) t. 477-480, XI. (1856) t. 1166-1167; Regel, Gartenfl. (1870) t. 659; Bot. Mag. (1856) t. 4924.]

Everyone interested in Rhododendrons knows this species figured by Hooker from plants collected by him in 1849, at an elevation of 10,000 feet, at Tonglo, in Sikkim, and through him the species came into general cultivation. Before Hooker's time it had been grown from seeds sent home by Col. Sykes. (Lacaita records that in 1913 he could find no R. FALCONERI on the top of Tonglo.) Since then seeds under the name have been sent home frequently. Hooker recognised the great variability of his species, but no Botanist as yet has sifted the variations. So far the only names that have been given to forms that belong to the aggregate R. FALCONERI are:—

(*a*) R. VENOSUM by Nuttall to a Bhutan plant found by Booth which has a white underleaf tomentum and which he says "appears to have come up in several collections with the seeds of R. FALCONERI distributed by Dr. Hooker." Sir Wm. Hooker in the BOTANICAL MAGAZINE sunk the species in R. FALCONERI, and there it has remained.

(*b*) R. EXIMIUM by Nuttall to the position of which and its distinguishing characters I have referred above.

(*c*) R. DECIPIENS by Lacaita of which I have also written above. Lacaita also refers to another plant with "flowers crimson in bud" belonging to the series.

A comprehensive and detailed survey of R. FALCONERI is necessary to give us bedrock for segregation of the forms and determination if possible of natural hybrids, and until that comes no useful purpose can be served by discussion. I will only note here that in this most hardy plant the cup-hairs of the underleaf indumentum in the type Hookerian specimen of R. FALCONERI have a distinctive form. They are nearly sessile, and the cup is elongated to a shape somewhat

like that of a tumbler, often with slightly bulging base, having a wall of but slightly elongated cells and the mouth is somewhat ragged and split into fringed segments which are not greatly prolonged. There is in consequence less holding together of the hairs by interlocking of the branches than is found in some other species, and the cup-hairs of the older leaves readily separate from one another as little granules. As regards the flower, Hooker f. in 1893 when writing of R. EXIMIUM pointed out that the plant which he found on Tonglo, and described as R. FALCONERI, was an aberrant starved one with small pure white flowers without a basal purple blotch, not the creamy or yellow-white blotched form that is commonly associated with the plant. I find that the filaments of the usually 16 stamens are sometimes quite glabrous, sometimes puberulous ; that the many-chambered (I find usually 16 chambers) ovary has a covering of glands some on long some on short stalks, and this glandular character distinguishes R. FALCONERI and its microforms from all other members of its series. In most typical forms the ovary has a dense tomentum of fasciate hairs with long cylindric branches so many as to cover entirely the glands which, however, indicate their presence by the stickiness they impart to the indumentum, and they are easily described by dissection. Perhaps this hiding of them under the hairs accounts for the omission of mention of the glands in descriptions, for instance, by Clarke in the FLORA OF BRITISH INDIA. But in cases the number of hairs is fewer and then the glands are exposed and the ovarian surface glistens with secretion. Moreover the glands extend from the ovary over the lower part of the style. If you find a member of the Falconeri Series with a glandular ovary you may assume that it is R. FALCONERI or one of its microforms (including in that designation R. EXIMIUM). It will be gathered from what I have said that there are many variations in flower-character which require analysis and correlation with vegetative differences before we know the limits that mark off R. FALCONERI as a species.

RHODODENDRON FICTOLACTEUM, *Balf. f.*

[Figured as R. LACTEUM in Bot. Mag. (1911) t. 8372].

[*syn.* R. LACTEUM var. MACROPHYLLUM, Franch.].

The story of R. FICTOLACTEUM will be found in the GARDENERS' CHRONICLE for 1916, and in the TRANSACTIONS OF THE BOTANICAL SOCIETY OF EDINBURGH of the same year. Here it is only necessary to say that the plant is the R. LACTEUM var. MACROPHYLLUM of Franchet, and was discovered in 1886 by Delavay, near Langkiung, not far N.E. from Talifu, in Western Yunnan, at an elevation of 3,200 m. The plant is in cultivation from seeds sent by Delavay to the Jardin des Plantes, Paris, and flowered for the first time in Europe in 1910 with Mr. Godman at South Lodge, Horsham. It seems to be hardy. In the earlier years of its cultivation it was called R. LACTEUM which belongs to a different series of the genus having a velvety underleaf indumentum of one stratum. R. FICTOLACTEUM is a typical member of the Falconeri Series. As we know it, it has the most extended distribution of all the Chinese members of the Falconeri Series, and has been collected in abundance by Forrest on all his journeys, but curiously enough only three sets of his specimens have flowers. Delavay's

station at Langkiung, where Forrest has also collected it is its southern limit; thence it spreads north and north-east over the Likiang Range to the Chungtien Plateau, and also to the Mu-li Mountains in S.W. Szechwan, but it also has a remarkable range to the north-west over the Kari Pass and the Mekong-Yangtze divide into the Mekong-Salween divide. Our knowledge of all this further distribution we owe to Forrest. The specimens of it obtained over its wide area show some variation in dimensions of the rugulose leaf, narrow and broad, short and long, but so far as evidence in foliage-specimens offers only one species is decipherable showing these forms. The strong diagnostic character of the species which all these forms possess is that of the underleaf indumentum. The hairs of the upper stratum which give the cinnamon-colour to the surface are somewhat broad open funnel-shaped cups with a polygonal outline raised on longish many-celled stalks. The cup-wall is thin, of large nearly isodiametric cells, and its undulate margin is lobed, each lobe prolonged into branched hairs, whilst the intervals between the lobes are somewhat concave. The features are most characteristic and enable one to recognise the species without difficulty. It is upon this character that the specimens without flower or fruit have been identified. The flower-truss has some 20 flowers, each flower with a white 8-lobed corolla slightly cream-tinted and with a large basal crimson blotch surmounted by fainter crimson spots, 16 stamens with puberulous filaments, and an 8-10-chambered ovary coated outside with a tomentum of short-stalked hairs not densely aggregated, each putting out from the summit of the stalk many loose branches, the whole hair somewhat resembling a pollard willow. Of where to place this species in the Falconeri Series I am uncertain. It has links with several, and yet differs from all. Perhaps the species least divergent is R. SINOFALCONERI.

RHODODENDRON GALACTINUM, *Balf. f.*

[*syn.* R. LACTEUM, Rehder et Wilson, Pl. Wilsonianæ I (1913) 545 in part].

In 1916, when writing in the TRANSACTIONS OF THE BOTANICAL SOCIETY OF EDINBURGH, about R. LACTEUM and R. FICTOLACTEUM, I pointed out that Wilson's No. 4254, which was placed—with a suggestion of doubt—by Rehder and Wilson, under R. LACTEUM, Franch., in PLANTÆ WILSONIANÆ, could not be that species. The plant was collected by Wilson in October, 1910, at an elevation of 3,000-3,300 m., in woods of Pan-lan-shan, west of Kuan Hsien, in Western Szechwan. Wilson obtained his plant in fruit only, and many plants have been raised from seed collected by him. My expectation that Wilson's plant would prove to be a new species was based upon the examination of the underleaf indumentum of young living plants. As the plants have grown the leaf-characters support the view that we have here a distinct species. Indeed, so evident is the difference in appearance of Wilson's plants and other members of the Falconeri Series that there is no doubt in my mind over the question of specific distinction. Christening of it here is a transgression of a canon which discourages the botanical naming of plants known in foliage only, and if I sin it is because the name affords the simplest method of replying to enquiries as to the identity of Wilson No. 4254, and also of stifling at the outset the naming of it as "R. LACTEUM?" and "R. FICTOLACTUEM?" a practice which is certain

to lead to confusion. Where the plant is growing in the United Kingdom in favourable climatic conditions it must be approaching now flowering age, and until it flowers a full description of it cannot be given. Here, therefore, it is only possible to say that the plant is characterised by a bright-green foliage with a buff-coloured underleaf indumentum. The terminal buds on our specimens are not quite of the type of those of other members of the series, the outer scale-leaves are not prominent, and there is a clustering of buds around the terminal one in a fashion I have not seen elsewhere in the series. Whether this is only a juvenile character time will show. The cup-hairs of the upper stratum of indumentum are most typically those of the Falconeri Series. They are, however, like those of no other species, and furnish a sure mark for recognition and diagnosis. Delicate funnel-cups they are into the base of which the long thin stalk gradually expands. The wall is composed of narrow, much elongated cells, between which are narrow fine ridges of thicker-walled cells which run out from the mouth of the cup as delicate hair-branches, which by interlacing give the soft somewhat woolly surface to the underleaf.

Rhododendron Hodgsoni, *Hook. f.*

[Figured in Rhod. Sikkim Himal. (1849) t. XV. ; Revue Hortic. (1853) t. 22 ; Bot. Mag. (1866) t. 5552].

This familiar species is said to have been first collected by Griffith, in 1837-38, in Bhutan. If this be based upon the identification by Clarke in Flora of British India, III. (1882), 465, of the plant collected by Griffith at Tsamsu, and figured in plate DXXI. of Griffith's Icones, the statement is incorrect, because Griffith's plant is not R. Hodgsoni, nor a member of the Falconeri Series, but belongs to the Grande Series. Our real knowledge of R. Hodgsoni dates from Hooker's discovery of it in Sikkim, in 1848, where it is the characteristic tree or shrub at 10-12,000 feet elevation in all valleys. It was introduced to cultivation by Hooker, and in our gardens it is the hardiest of the hardy. Its large elongated oblong blunt leaves, retaining for long on the upper surface greyish traces of a juvenile indumentum, and showing a grey or later pale buff-coloured under surface are definite features of the true species. The cup-hairs of the underleaf indumentum are shallow, broad and open, slightly funnel-shaped at the joining of cup with the relatively thin many-celled stalk, the wall of the cup formed of large nearly isodiametric cells, and the margin undulate with a few lobular projections which end each in a short fringe hair-branch. They resemble most the cup-hairs of R. coriaceum and R. Rex, and as in these species give the older leaf-surface a very evident foveolate or scurfy appearance and scintillate prismatic colours from the dry white membranous walls, very different from the woolly look impressed upon the underleaf surface in such species as R. arizelum, R. eximium, and R. Falconeri, by the interlacing of the hair-branches of the cup-margin. They sometimes become agglutinate as isolated warts over the exposed pellicle of the under stratum of indumentum, often they disappear altogether from this pellicle. The compact truss of flowers, opening darker and fading to a paler magenta-purple, the not large 6-10-lobed corolla with usually a few dark basal antipetaline small blotches, the very short 15 or more stamens

with glabrous filaments and the 9-12-chambered ovary coated with a tomentum of short-stemmed fasciate hairs with much interlocking branches, the curved capsule some 4 cm. long and barely 1 cm. in diameter of the narrower type in the series like that of R. CORIACEUM, are an assemblage of sharply differentiating characters which prevent confusion of this with any other species. R. HODGSONI finds its nearest allies in the Chinese R. CORIACEUM and R. REX, and in R. REGALE.

In cultivation there are under the name many forms undoubtedly nearer to R. HODGSONI than to any other species but which are not typical of it. They want investigation. To what extent some of them are artificial hybrids, I do not know, but they cannot all be of this origin. We have at Edinburgh several of them which came out of the same packet of Calcutta seed. It may be suggested that they are natural hybrids. Perhaps, but only investigation will decide. We may recall here Lacaita's remarks about his R. DECIPIENS. Lacaita's reference to another plant bearing flowers "crimson in the bud," growing amongst R. HODGSONI and R. DECIPIENS, is interesting as telling us how easy it must be for variant forms to be imported in one packet of seed. He gives few other characters by which to recognise this particular form, yet I think his plant is in cultivation here. From my present knowledge I am disposed to say that plants in cultivation with underleaf cinnamon-brown tomentum cannot be typical R. HODGSONI. The right tint is indicated in Hooker's drawing. There is a field of interesting study in these plants known as R. HODGSONI. The long period that elapses between sowing and flowering—plants from seed sown over thirty years ago are only now beginning to flower here—is a handicap upon observations on cultivated plants, but if made they would add to the knowledge which it may be hoped will some day be derived from study of the plants in their wild state.

RHODODENDRON MEGAPHYLLUM, *Balf. f. et Forrest.*

Forrest discovered this species in June, 1918, in Rhododendron forest on the Shweli-Salween divide at an elevation of 11,000 feet. It was in full flower, and he describes it as a shrub of 10-30 feet in height, bearing yellow flowers with a faint blush of rose or a crimson tint at base. Seed was obtained later in the same year. In our specimens it is a smaller-leaved plant than others of the series. This is a distinguishing mark from its nearest ally R. BASILICUM. The leaves about 18 cm. long and 12 cm. broad hardly wrinkled above have the characteristic rusty to cinnamon-coloured indumentum persistent on the under surface, the cup-hairs of the upper stratum with a bell-shaped base and walls of isodiametric cells, the cup-margin prolonged into a few minute lobes but not really fringed. The flower-truss is large with some 20 flowers. The corolla, medium-sized, about 4.5 cm. long, is unspotted and has 8 lobes. There are 16 stamens with glabrous filaments and a 10-11-chambered ovary densely covered with long fasciate hairs. The capsule is slightly curved barely 2 cm. long and 5 mm. in diameter.

It resembles R. ARIZELUM and R. BASILICUM more closely than other species in the series, but the cup-hairs of the underleaf indumentum separate them both, and then R. ARIZELUM has puberulous stamens and different ovary hairs whilst

R. BASILICUM has much larger leaves and more chambers in its larger fruit. Another species nearly allied to R. MEGAPHYLLUM may yet have to be described. Forrest discovered it in 1918, on the Shweli-Salween divide, and Farrar also found it in 1919, on the Hpimaw Pass. Like R. MEGAPHYLLUM in form and size of foliage, it has a grey under-leaf with indumentum detersile at an early age. The material so far received does not suffice for precise determination.

RHODODENDRON PREPTUM, *Balf. f. et Forrest.*

Of this species, one of Forrest's most recent finds, Mr. J. C. Williams has only received as yet advance specimens by postal packet. Forrest discovered it in May, 1919, at an elevation of 11,000 feet, in bamboo and mixed scrub on the N'Maikha divide, in N.E. Upper Burma, and he writes of it as a shrub of 6 to 8 feet with flowers probably yellowish-white or pale yellow crimsoned at base, but at the date of collection the flowers were almost gone. The specimens show a plant with small leaves 16 cm. long, 6 cm. broad, narrow for the series, palish green above and not much wrinkled, buff-coloured on the underside. The cup-hairs of the underleaf indumentum resemble somewhat those of R. ARIZELUM, having stout stalks and a funnel-type of cup with walls composed of elongated cells, and ridged by bands of thicker-walled ones which diverge irregularly from the mouth of the cup as much-branched fringe-lobes. From the stalk as well as from the wall-ridges branch-hairs also proceed obscuring slightly the cup-mouth. The interlacing of the hair-branches gives a soft woolly aspect to the leaf-surface. There is no perfect truss of flowers on the specimens, but the individual flowers are small, the 8-lobed corolla only about 3 cm. long; the 16 stamens with puberulous filaments are much shorter than the corolla, and the 12-13-chambered ovary is covered with a dense tomentum of shortly stalked branched hairs each hair resembling in its stem and branches a pollard willow.

The position of R. PREPTUM in the series is not definable at present. Perhaps R. ARIZELUM is the closest ally, but the broad leaves dark rusty coloured below, larger corolla, stamens and style of that species distinguish it.

RHODODENDRON REGALE, *Balf. f. et Ward.*

This species was gathered by Kingdon Ward, in May, 1914, at Htawjaw, in the valley of Naum-Chaung, in N.E. Upper Burma, at an elevation of over 10,000 feet. He describes it as a gnarled tree of 20-30 feet, bearing "flowers rather glutinous, cream-white with dark-purple blotch at base of corolla." The large leaves recall those of R. BASILICUM. They are about 25 cm. or more long, 12 cm. wide, slightly wrinkled above, but their under surface is grey in colour like that of R. CORIACEUM, not cinnamon-brown as in so many of the Falconeri Series. The hairs of the upper stratum of underleaf indumentum are of a delicate consistence, each a funnel-shaped cup typically broad and open, but when closely pressed together forming narrow funnels, the stalk short, the wall of elongated small cells, the margin prolonged as a fringe of short hair-branches. This stratum is not thick, and is usually deciduous. The flower-truss is not large, apparently about 12 flowers. The flower is not of the largest in the

series—some 3-3.5 cm. long, and is nine-lobed, and the stamens, 18, with puberulous filaments are short, about half the length of the corolla. The 10-chambered ovary is tomentose with short besom-like hairs.

The grey indumentum and the character of its hairs, the conspicuously puberulous stamens, the 10-chambered ovary with short besom-shaped hairs, separate this species from R. BASILICUM, which to first observation it resembles. The plant is not in cultivation.

RHODODENDRON REX, *Léveillé.*

This as the name of a Rhododendron will be new probably to most Members of the Society. The species was indicated—one can hardly say described—in his customary fashion by Léveillé, in FEDDE'S REPERTORIUM for 1914, based upon specimens collected in May, 1911, at an elevation of 3,200 m., on Mount Io-chou, in N.E. Yunnan, by Maire, who writes of it as a tree 4-5 m. high, bearing rose-coloured flowers. I should have had difficulty about confirming or otherwise criticising Léveillé's determination but for the munificence of Mr. A. K. Bulley and Major Lionel de Rothschild who purchased Léveillé's Herbarium after his death this year (1919) and generously presented it to the Royal Botanic Garden. Examination of the type in Léveillé's Herbarium enables me to say R. REX is a distinct species, the most easterly of the known members of the Falconeri Series. Its rugulose leaves some 25 cm. long, 8 cm. broad, recall by their colouring and by the grey underleaf indumentum those of R. CORIACEUM, but do not taper so markedly to the base and are broader. It is a close ally of this species. The cup-hairs of the indumentum are more or less bowl-shaped with nearly isodiametric cells in the walls, but the cup-margin is distinctly though shortly fringed. The cups are quite easily seen as separate pits on the leaf-surface as they are in R. CORIACEUM. The flower-truss is large, of over 20 flowers, the eight-lobed corolla is long, nearly 5 cm., and more tubular-campanulate than in R. CORIACEUM, but as there it has a basal blotch and many crimson spots spreading upwards from it, and the 16 stamens which have puberulous filaments are nearly twice as long as those of R. CORIACEUM, and the style is in like case. The ovary in the two species is small and has few (here nine) large chambers separated by thin septa. The hairs on the outside of the ovary are floccose, with a long pluricellular stalk, from top of which many erect pointed branches arise in a close tuft, and whilst of the type of those in R. CORIACEUM are different from them.

These two species, R. CORIACEUM and R. REX, are evidently western and eastern forms of one strain within the Falconeri Series. R. REX is not in cultivation.

RHODODENDRON SINOFALCONERI, *Balf. f.*

[*syn.* R. FALCONERI, Hemsley et Wilson].

This, the second earliest to be discovered—although not recognised and described until long afterwards—of the Chinese species of the Falconeri Series, was found by Henry before 1898, in forests at an elevation of 9,000 feet, on the summit of mountains north of Mengtsz, in S.E. Yunnan. There is no certain

record of it since then. Henry says it is a tree of 20 feet with yellow flowers. Hemsley in the KEW BULLETIN of 1910, p. 107, referred Henry's specimens to R. FALCONERI, a procedure from which Wilson dissented—and it is distinct. Its habitat just within the tropics (although at 9,000 feet) and separated by several high divides from the Himalayas, where the lowest elevation for R. FALCONERI is given as 9,000 feet, is certainly against specific identity of the two plants, and the analysis of characters brings out the difference between them as I have explained in NOTES R.B.G. EDIN., Vol. IX. (1916) p. 272. Confirming what I said there further acquaintance with the Chinese large-leaved Rhododendrons, whether of the Falconeri or Grande Series, shows in every case that no one of them is conspecific with a Himalayan plant. Links between the Chinese and Himalayan will be found doubtless when exploration reveals the treasures of the intervening region. R. SINOFALCONERI is not in cultivation, and its place of origin does not suggest that when it does come it will be hardy. It is a fine species with leaves 27 cm. long, 16 cm. broad, and larger than those of R. FALCONERI, not so wrinkled above nor excavated below, and with a paler cinnamon-coloured, apparently very persistent, underleaf indumentum. The cup-hairs have long stalks and the cup itself is shallow and broad, spreading out into a fringe of long not much branched hairs which interlock to form a spongy surface. Of the size of truss the material does not supply evidence but suffices to show that the 8-lobed corolla is large, the stamens have puberulous filaments—and the 16-17-chambered ovary has no glands on the outside, but possesses a dense tomentum of very closely set fasciate hairs.

Since R. SINOFALCONERI was differentiated from R. FALCONERI more knowledge of the relationships of species in the Falconeri Series has been acquired, and I am not assured that R. SINOFALCONERI really finds its nearest ally in R. FALCONERI. Its affinity is perhaps nearer to R. FICTOLACTEUM. Its non-glandular ovary is a prominent character of separation of it from R. FALCONERI. Its broader leaves and flower-colour tell it from R. FICTOLACTEUM.

Some of these fourteen species of the Falconeri Series fall into subordinate groups of more nearly allied species within the phylum, others are more isolated. It may help to crystallise our conception of the members of the series if some indication be given of these more intimate relationships. I have therefore arranged the species in the following group-table :—

R. ARIZELUM	R. DECIPIENS	R. BASILICUM
	R. EXIMIUM	R. MEGAPHYLLUM
	R. FALCONERI	
R. FICTOLACTEUM	R. CORIACEUM	R. GALACTINUM
R. SINOFALCONERI	R. HODGSONI	R. PREPTUM
	R. REGALE	
	R. REX	

Ten of these species are in cultivation (including those which are only in the seed or seedling stage at present). Those which are not known in cultivation

are R. DECIPIENS, R. REGALE, R. REX, and R. SINOFALCONERI. In the following tentative key I include all the species :—

KEY TO THE SPECIES.

I. Leaf-shape a variant of oval to oblong-oval to obovate rarely oblanceolate. Underleaf indumentum rust-coloured or cinnamon-tinted of shades. Ovary glandular or not.

1. Indumentum surface more or less woolly from interlacing branches of cup-hairs which are easily separable as more or less erect stiff elongated chalices. Corolla creamy-white or pale-yellow blotched crimson at base or rose-pink.

Ovary glandular. Cup-hairs of indumentum sessile.

Leaf-petiole bearded. Corolla rose-pink. Stamens puberulous. Ovary 16-chambered epilose — EXIMIUM.

Leaf-petiole not bearded.

Corolla rose-purple. Stamens puberulous .. — DECIPIENS.

Corolla creamy-white with or without basal crimson blotching. Stamens 16 puberulous or glabrous. Ovary 16-chambered tomentose .. .. — FALCONERI.

Ovary not glandular. Cup-hairs of indumentum stalked.

Leaf-petiole not bearded. Corolla pale-yellow or creamy-white with basal crimson blotch. Stamens 16 puberulous. Ovary 12-15-chambered .. .. — ARIZELUM.

2. Indumentum surface spongy the concavities of its open spreading soft cup-hairs showing as pits amongst the thin interlacing of marginal hairs. The cup-hairs not readily separating. Corolla creamy-white or yellow blotched and spotted or not.

Ovary not glandular.

Leaf-petiole not bearded.

Lamina broad oval. Corolla yellow. Stamens 16 puberulous. Ovary 16-17-chambered — SINOFALCONERI.

Lamina oblanceolate. Corolla creamy-white with crimson blotch and spots. Stamens 16 puberulous. Ovary 8-10-chambered — FICTOLACTEUM.

3. Indumentum surface spongy the mouths of the funnel-shaped stiffish hairs showing as pits amongst the few marginal hairs of the cup which do not form a copious concealing wool. The cup-hairs can be readily separated. Corolla creamy-white blotched crimson.

Ovary not glandular.

Leaf-petiole not bearded. Corolla yellow blotched.

Lamina obovate.

Leaf about 16 cm. long. Cup-hairs bell-shaped and short slightly fringed. Ovary 10-chambered. Stamens 16 glabrous. Capsule about 2 cm. long .. MEGAPHYLLUM.

Leaf about 25 cm. long. Cup-hairs funnel-shaped long profusely fringed. Ovary 12-15-chambered. Stamens 16 glabrous. Capsule about 4 cm. long .. .. BASILICUM.

II. Leaf-shape a variant of oblong to oblanceolate rarely obovate. Underleaf indumentum grey or pale buff-grey. Ovary not glandular.

4. Indumentum surface grey scintillating its bowl-shaped or open funnel cup-hairs visible isolated membranous easily detachable. Corolla rose spotted.

Leaves oblanceolate. Cup-hairs bowl-shaped fringed or not. Ovary hairs floccose.

Cup-hairs not fringed. Corolla about 3 cm. long. Stamens 14 puberulous. Ovary 7-chambered CORIACEUM.

Cup-hairs fringed. Corolla 4-5 cm. long. Stamens 16 puberulous. Ovary 9-chambered .. REX.

Leaves obovate. Cup-hairs funnel-shaped fringed. Ovary hairs fasciate. Corolla about 3.5 cm. long. Stamens 18 puberulous. Ovary 10-chambered .. .. .. REGALE.

5. Indumentum surface grey to pale-buff scintillating, its open cup-hairs isolated erect or adpressed and becoming somewhat agglutinate as a scurf. Corolla rose-purple unspotted.

Leaves oblong. Cup-hairs open shallow hardly fringed. Ovary hairs woolly. Corolla about 3 cm. long. Stamens about 15 glabrous. Ovary 9-12-chambered .. .. .. HODGSONI.

6. Indumentum surface pale-buff not scintillating somewhat woolly its funnel-shaped delicate cup-hairs deliquescing into many thin interlacing branches are not easily separable. Corolla colour unknown.

Leaves oblong-lanceolate or oblong-oval narrowing to apex .. .. GALACTINUM.

Leaves oblanceolate or oblong-obovate rounded at apex .. .. PREPTUM.

For the differentiation of species the character of underleaf indumentum has been largely used in the preceding pages, and the features of the cup-hairs are not only diagnostic of the series, but also within it. It is difficult to give in a few words a satisfactory description of the hair-forms; sketches or photographs are required to make clear their individual appearances and differences. These have been prepared and will I hope appear in an early number of NOTES FROM THE ROYAL BOTANIC GARDEN, EDINBURGH, with a fuller account of the indumentum and its development.

The story which I have written is manifestly incomplete, and readers may be disappointed, as I am, over omissions where information is particularly desirable. But the time is not yet for the writing of complete stories of the several series of Rhododendron—and this because the old requires revision and the new to be assimilated is so large in amount. We have to learn much about the Himalayan forms. For too long we have been content to rest in the belief that the last word has been said upon them. This is far from being the case. Hooker recognised on the spot many distinct forms which Clarke subsequently combined at the sacrifice of precise diagnosis. These have all to be worked over again in the light of newer knowledge. And then the arrival of new species from Western China, which does not seem likely to abate for some time, is constantly extending our horizon and giving us new clues to relationship. Here I only claim to have brought together in one assemblage a number of forms that seem to be naturally related to one another more closely than they are to other forms. That the Chinese species will be found to vary as much as we know the Himalayan ones do we may expect and definitions based as at present upon single dried specimens will be found doubtless to require modification; but I have confidence in the correctness of my interpretations of characters as phyletic and have hope that some at least of what I have written may be helpful to Rhododendron lovers.

I. BAYLEY BALFOUR.

The Rhododendron Society Notes.

RHODODENDRONS AT DAWYCK STOBO, TWEED-DALE.

The extraordinarily severe early frost of 15th November last is rather too recent to judge of its full effects on rhododendrons here. The temperature fell for one night to 4° below zero, and only a few miles further north in this County the thermometer actually registered 41 degrees of frost. Temperatures of 2° below zero are almost of annual occurrence with us, but never before have I heard of such a frost so early in the winter.

The Chinese rhododendrons, which have been growing here for some years, are for the most part the result of Wilson's Expeditions for Messrs. Veitch and the Arnold Arboretum, and a great many of them I owe to the generosity of Professor Sargent.

Two years ago I enumerated in a note for the Society (Vol. 1, page 152), most of the rhododendrons here that had succumbed to severe frosts, or had been injured, or had shown no ill effects at all. Of the survivors then I have lost no more, and in spite of the lesson I had already learned, I have attempted again to establish a good many of those that had previously failed. I have also planted many more species which two years ago I did not have.

It may be of some interest to Members to learn which have consistently shown perfect hardihood, and which find this climate too much for them.

I am quite certain that any rhododendron, hardy here, can be grown successfully anywhere in the British Isles, below 1,200 feet altitude. A comparison of the following list with the previous one will show that several which had previously been injured or killed outright are now re-established and apparently quite hardy, and I am agreeably surprised to find how many of the more recently introduced species are equally hardy.

The following plants have been killed by the November frost :—R. CRASSUM, ZALEUCUM, Bailey's ARBOREUM, FORDII, NERIIFLORUM, DELAVAYI, HUNNEWELLIANUM, while the following had their foliage browned, but I expect will quite recover :—R. CYANOCARPUM, WASONII, CALLIMORPHUM, HANCEANUM, FLORIBUNDUM (two plants out of five much injured), Forrest's LACTEUM.

The buds of these next have been frozen but the foliage does not seem to have much suffered :—R. YANTHINUM, PLEBEIUM, HABROTRICHUM, VILLOSUM, FULVUM (one plant badly injured, the other two do not seem to have suffered).

Those that seem to be nowise the worse are :—R. FICTOLACTEUM, GALACTEUM (Wilson's lacteum), NIPHARGUM, WATSONII, FORREST 5870 (Traillianum ?), LONGESQUAMATUM, FABERI, TRICHOCLADUM, ARGYROPHYLLUM, RHANTUM, SOULIEI, INSIGNE, WELDIANUM, DAVIDII (flower buds quite uninjured), OREODOXA (flower buds quite uninjured), RUBIGINOSUM, PRATTII, OLEIFOLIUM, HYPOGLAUCUM (but R. GLAUCUM had its leaves browned), RIREI, PRZEWALSKII, PACHYTRICHUM, STRIGILLOSUM, OREOTREPHES, (flower buds uninjured on the old wood but young shoots have suffered), TALIENSE, WILTONII, TRAILLIANUM, HOULSTONII, DAVIDSONIANUM, WILLIAMSIANUM.

The Rhododendron Society Notes.

I have some 5 feet plants of the larger-leaved species, R. SUTCHUENENSE, CALOPHYTUM and DISCOLOR, all of which are growing very vigorously and never did better than during the summer of 1919, but none have flowered yet. R. DECORUM gives a good show of blossom every year.

For some unexplained reason I fail completely with all the small leaved heath-like species I have tried, R. SARGENTIANUM, INTRICATUM, FASTIGIATUM, but they all die in their first few months here, and I have made several attempts.

R. RACEMOSUM though quite hardy is disappointingly sparing of flower in most seasons.

Of the Himalayan kinds R. THOMSONII was well covered with flower buds, but, alas, the November frost has destroyed those on some of the plants though the buds of taller plants escaped.

Of Japanese species, few of which will live at Dawyck, R. METTERNICHII has had its last year's growth badly scorched ; it seems to ripen its foliage late. The only perfectly satisfactory rhododendron from Japan in any situation here is R. BRACHYCARPUM.

It is rather surprising that Gaultheria procumbens which does well almost universally gradually dies out here, though Gaultheria Shallon of the Pacific Coast is one of our best plants though, if anything, less vigorous than G.Veitchiana of Wilson.

F. R. S. BALFOUR.

PLANTS AND RHODODENDRONS AT KILMACCURRAGH.

I had the pleasure of spending a few hours at Kilmaccurragh this year, and will give as best I can a summary of my notes as a continuation of my contribution to the Rhododendron Society's publication of 1917.

To those unacquainted with the wonders of this charming place, and splendid collection of trees and shrubs, I may say that on entering the demesne no one can have any idea of the surprises that are in store for him.

The first thing that greets the eye of the visitor, after passing down the avenue for some distance, is a group of fine, large, well-grown plants of Rhododendron ARBOREUM hybrids, behind which there are magnificent specimens of Pinus excelsa, Sequoia sempervirens, Picea sitchensis, Cedrus atlantica glauca, and a very distinct and curious form of Cupressus Lawsoniana. This last-named tree, which is upwards of 40 feet high, grows exactly like Libocedrus decurrens, and until one has examined it closely it is impossible to believe that it is anything else but the latter. I know of no other plant like it.

Coming into the park you are struck by Abies Pindrow, which I measured and found to be 52 feet high. This tree was raised from imported seed, and was planted 39 years ago. I never saw a plant better grown or in finer health, the length of the leaves being prodigious. Further on there is a fine tree of Abies Webbiana var. brevifolia, which was raised from imported seed, and planted the same year. I measured it and found it to be 36 feet high. I was moreover much interested in a splendid specimen of the spreading form of Cupressus macrocarpa, which measured 40 feet high and 77 feet wide, close to which is Abies Pinsapo var. glauca 56 feet high, and Picea Alcockiana (now called P. bicolor) 50 feet.

In the avenue amongst the R. ARBOREUM hybrids I omitted to mention a large plant of Cupressus pisifera var. squarrosa, which I found to be 35 feet and 5 feet in girth.

Below the house one finds many Rhododendrons remarkable for size and condition, such as R. FALCONERI; a wonderful specimen of R. ARBOREUM ALBUM, 40 feet high, of the upright form, and with smaller leaves than the type; it was planted in 1864. Near by is a fine R. HODGSONII, close to which stands Prumnoitys elegans, 26 feet high and 20 feet through. This tree was in fruit a few days ago. Again there are nice specimens of R. FULGENS and the newer R. YUNNANENSE (planted 12 years ago), both 12 feet high, close to which is a very interesting plant, Vaccinium glauco-album, *Hook, f.* (Flora Brit. India, Vol. III., p. 353). Further on one sees the rare R. SHEPHERDII, over 12 feet high, and next it is a hybrid, raised by the late Mr. Mangles, between R. CAMPANULATUM and R. THOMSONII. Here one also sees splendid plants of Ilex perado, 24 feet high by 30 feet through; while Ilex Latifolia, 25 feet high, was in fruit a few days ago. Then comes Rhododendron EXIMIUM, 25 feet high and as much through, and opposite Podocarpus nubigena, 30 feet by 30 feet. There are several grand

plants of Rhododendron GRANDE ; one I found to be 25 feet high, and near is a thriving young specimen of Pinus Armandii about the same height. There is, moreover, an interesting hybrid between R. BARBATUM and R. CAMPBELLIÆ which stands close by ; the flowers are deep pink with frilled edges and very fragrant. It was raised by the late Mr. Thomas Acton, the former proprietor and collector of all these treasures, about 45 years ago. Of the many other rhododendrons of interest there are :—R. LANATUM, R. BRACHYCARPUM, R. DECORUM, R. ZEYLANICUM (about eight feet high), a fine hybrid between R. FORTUNEI and R. THOMSONII, and the rare R. RHOMBICUM. I should not forget to mention that Kilmaccurragh possesses not only a large and thriving specimen of Nothofagus Cunninghamii, but also the only plant of N. Moorei that is, I believe, to be found in Europe. This latter somewhat resembles N. procera, except it is evergreen ; it is well-grown and in excellent condition, but, unfortunately, all efforts hitherto made have failed to propagate it. Near by is Magnolia Campbellii, which bears its lovely flowers, and also a huge plant of Senecio Grayi. Of others I may note : Laurelia serrata, a rare evergreen with fragrant leaves from South America ; Embothrium coccineum which grows to tree-like size ; Juniperus recurva, 25 feet high ; Fitzroya patagonica, 35 feet ; Thuya japonica 30 feet, Eucalyptus coccifera, 56 feet, planted in 1899 ; and a fine young specimen of Cupressus cashmeriana, 10 feet high.

HEADFORT.

The Rhododendron Society Notes.

A FURTHER NOTE ON THE CULTIVATION OF RHODODENDRONS AT LEONARDSLEE.

The soil at Leonardslee, generally speaking, is not unfavourable to the growth of Rhododendrons, but there are parts where the soil is too heavy and where they suffer in cold, wet winters, and there are some parts where the soil is so light that it dries up completely in times of drought.

I have already mentioned in Vol. I., p. 195 of the Society's Notes, that we had opened a trench round the plants that had suffered, and had placed turfy loam round the roots. The turf is taken off, about one inch thick, off pasture land and stacked. This note is to say that this treatment has succeeded beyond expectation.

All the plants so treated, which were looking ill and yellow, are now in the best of health, with dark green foliage. We find that leaf mould, and peat even, are apt to turn sour, and we now pin our faith to turfy loam when anything is required.

EDMUND GILES LODER.

The Rhododendron Society Notes.

RHODODENDRONS AT LOGAN.

I think it may be of some interest to record the behaviour of R. ARBOREUM planted in very wet ground. Many years ago I planted some R. ARBOREUM seedlings of some years growth in ground of this nature. The place was so wet that only a shallow hole could be dug owing to the water which at once filled it up, and as there was no room to get in the plants, a bed of peat had to be laid on the top and raised 18 inches to enable the plants to be placed where they were wanted. These ARBOREUMS are now large plants and flower splendidly every year though they are often sitting in water. Peat is laid over the roots from time to time; this form of mulching seems to be all that is necessary to their well-being. Near by, also in a wet place, are some plants of R. "PINK PEARL" treated in the same way, and these have flourished splendidly, producing each year enormous blooms. I measured these last year and found most of them as follows: truss 10 inches high, 24 inches in circumference, flowers, 17 inches, each flower 4½ inches across.

These plants make very strong growth and are somewhat straggly in habit. I have other ground of a swampy nature at the foot of the hill where I grow most of the Rhododendrons, and here in places where the ground is sufficiently firm to support the plants, I hope in time to try Rhododendrons. Neither rabbits nor roe deer have done any serious injury to any of the Rhododendrons since my last report. Moles, however, owing to the lack of labour to trap them, have taken possession of the ground and injured some of the small plants by working round and under the roots, and thereby loosening the hold of the plants. Weevils disfigured many leaves and some were eaten by caterpillars.

R. LUTESCENS during a mild spell of weather in February last was decidedly nice, covered with its yellow flowers, deeper in colour than R. TRIFLORUM. R. HOOKERI has flower buds again this year; it did not flower last spring. R. AUCKLANDII flowered well for the first time here last year.

Gradually the Rhododendron ground is becoming better sheltered, but there is much to be achieved yet in this respect. Young larches cut with their branches left on and placed upright with strong supports and with their butts sunk into the ground are of great use while the shelter belts are growing. Used also for permanent shelter in a few places where nothing will grow, such as between old tree trunks, they give capital results as wind stops, and can easily be taken away in summer if necessary, but I do not think they will be much in evidence at any time of the year, and having once placed such screens in the right places, I hope it will be possible to let them alone for they should last for many years.

KENNETH McDOUALL.

The Rhododendron Society Notes.

NOTES FROM LAMELLEN GARDEN, 1919.

The seed-capsules of several species of rhododendrons have peculiarities which are interesting, and have doubtless been noted by the botanist, though they may not have attracted the attention of the ordinary gardens. Those of R. SCHLIPPENBACHII, for instance, are very thick and woody, whilst the seeds are large and comparatively few in number. They germinate well, however, and during the first season outstrip in growth any with which I am acquainted; but the difficulty with them comes later, and I have found many of the small plants die off for no apparent reason. I am inclined to think that the species is very susceptible to drought, at any rate until three or four years old.

R. CAMELLIAEFLORUM makes plenty of large seed pods, which however contain a lot of chaff and comparatively few good seeds. The capsules of CILIICALYX are remarkably thick and woody, and there is not much seed, but this may have been accounted for in the pod under examination by the fact that it had been fertilised with MOUPINENSE pollen.

January 5th. To-day I found three beautiful flowers on a plant of R. ZEYLANICUM. It is curious, despite the resemblance in leaf, that this species has for so long been confused with R. KINGIANUM, for that plant flowers some months later, and has a much smaller truss of more tubular flowers, of a much darker and richer shade of crimson.

Second week in March. A flower opened on a plant which came under the number 1872, Wilson, and should therefore be R. WATSONII, but is not. It is a shrub with an erect habit, and there are nine flowers to the truss, $2\frac{1}{4}$ by $2\frac{1}{2}$ inches, seven-lobed, very pale rose with two small faint lines of red spots in the interior; filaments and stigma white, stamens dark brown. A first flower, and not a good one, which got partially destroyed by frost, when it was half out. The plant looks as if it may prove to be one of the OREODOXA series.

Second week in April. R. PACHYPODUM (13512F), clear butter-yellow, without the green tinge which there is in BOOTHII, five in a loose truss, 2 inch by $1\frac{1}{2}$ inch, five lobed, stamens brown, stigma yellow; the exterior covered with brown glands. The plant is hardy, but I hear the flowers are susceptible to frost. This species has the curved style peculiar to BOOTHII, TRICHOCLADUM, GLAUCUM, etc.

Also R. SCABRIFOLIUM (11072F), four in a truss, $\frac{3}{4}$ by $\frac{5}{8}$ inch, white, tinged pink, five lobed, stamens white, tinged brown, stigma white. The flower is not very attractive, and the plant is not supposed to be too hardy, but the leaves are very distinct and at once attract attention.

Fourth week in April. A pot plant of R. "LEPIDOBOOTHII" flowered in a cold frame, soon to be followed by others out of doors. Five-ten in a loose truss, $1\frac{1}{2}$ by 1 inch, openly campanulate, yellowish-white, tinged with pink and green, especially on the outside, interior spotted with greenish-brown, stamens 10, light-brown, filaments pink, stigma green. To my mind a pleasing little flower,

contrasting well with the brown leaves of the young shoots derived from BOOTHII. A straggling flat-growing plant of unknown origin, though raised from seed here, and which Prof. Bayley Balfour says is R. OLEIFOLIUM, *Fr.*, but which differs from Forrest's OLEIFOLIUM in having pure white flowers and a much less erect habit, and also in flowering some weeks earlier. The authorities at Kew say that Forrest's plant is Franchet's OLEIFOLIUM, but I can hardly believe that these two are one and the same species. The flowers were pure white, single in the axils of the leaves, campanulate, unspotted, five lobed, $1\frac{1}{2}$ by $1\frac{3}{4}$ inch, filaments white, stamens bright brown, stigma yellowish-white.

1539W, a species yet unnamed, six flowers in a loose truss, pale violet-rose with a dense spotting of crimson, and a blotch of crimson at the base, five lobed, campanulate, $1\frac{1}{2}$ by $1\frac{1}{2}$ inch, filaments blush-white, stamens pale-brown, stigma yellowish-white.

Another plant of Wilson's of which the number is lost, but which may be a variety or natural hybrid of STRIGILLOSUM, seven in a loose truss, pale violet-rose, campanulate, unspotted, but with a blotch of crimson at the base, 2 by $1\frac{7}{10}$ inch, filaments white, stamens dark-brown, stigma yellowish-white, five lobed.

R. 7794W MACROSEPALUM, violet-rose, four in a loose truss, calyx green divided to the base, and almost as long as the corolla, four lobed and deeply cleft, spotted on two segments with crimson, filaments same colour as corolla, stamens four in number, pale-brown, stigma yellowish-white with pink apex, openly campanulate.

R. " KEISKARBOR " (Keiskei×pink arboreum), white, shaded old-rose, with a blotch of crimson at the base, and two short lines of crimson spots, narrowly campanulate, $1\frac{1}{10}$ by $\frac{7}{10}$ inch, 10 in a truss, stamens bright-brown, stigma and filaments white.

One of a batch of rogues which came among seed marked R. TALIENSE—Tali Range 12,000 feet. I believe these to be a natural cross between HAEMATODES and NERIIFLORUM, as the leaves in about a dozen plants show every gradation of tomentum, and colouring from one species to the other. Ten in a truss, blood-red, unspotted, $1\frac{1}{4}$ by $1\frac{3}{5}$ inch, waxy, rather narrowly campanulate, filaments and stigma paler than corolla, stamens dark-brown, five lobed. Compared with NERIIFLORUM the flower is rather larger, of more substance and more fleshy, rather longer in the tube, not so deeply cleft into segments, and the colour is even more brilliant.

Third week in May. R. INDICUM MACROSTEMON (7862W), solitary flowers on a dwarf compact plant, lilac-rose with red spots on the upper segments, $1\frac{7}{10}$ by $2\frac{3}{5}$ inch, five lobed, openly campanulate, filaments and pistil red, stamens light brown. This plant has set large pods of seed to the blue AUGUSTINII (4238W).

Second week in May. R. MOLLICORNUM (10347F), flowers in two's in the axils of the leaves, pale-rose, five-lobed, 1 by 1 inch, filaments and pistil same colour as corolla, stamens purplish-brown, tubular campanulate.

Fourth week in May. R. STEREOPHYLLUM (11299F), pure white with orange spotting on upper segments, four in a truss, five-lobed, $\frac{9}{10}$ by $1\frac{1}{5}$ inch,

campanulate, filaments and pistil white, stamens pinkish-brown. This is almost deciduous, and appears to be one of the chartophyllum section.

Last week in May. A rhododendron flowered of which Forrest's description is " Rhod. sp ? Tali range. 6-10 feet. Flowers ? Open thickets, 11,000 feet." And the flower is as follows :—Lemon-yellow (Repertoire de couleurs)—which means that it is as yellow as BOOTHII but brighter, 3-5 in a truss, $\frac{5}{10}$ by $\frac{9}{10}$ inch, five or six-lobed, unspotted campanulate, filaments the same colour as corolla, stamens rather darker, stigma yellowish-green. Prof. Bayley Balfour believes this to be R. AUREUM *Franchet.*

Third week in September. R. REPENS (13259F), a near relation of R. FORRESTII. It is an absolutely prostrate plant and climbs like ivy, with a single scarlet-crimson flower 3.8 cm. long, tubular campanulate. I have put its pollen on to ADENOGYNUM and FLAVIDUM, but fear it may be too late in the season for them to ripen seed.

Also HIPPOPHAEOIDES × FASTIGIATUM—sown February, 1918, produced its first flower. The plant has the habit of FASTIGIATUM, but the flowers are the palest possible lavender, almost white, and a group of the plants should look very pretty.

The hot summer followed by rain has brought a good many species into flower, and at the time of writing (September 21st), there are blooms on ADENOGYNUM, FASTIGIATUM, RUPICOLUM, FLAVIDUM, and a white hybrid from this, PARVIFOLIUM, " PROSTIGIATUM,*" REPENS, HIPPOPHAEOIDES, PONTICUM, CEPHALANTHUM, CEPHALANTHOIDES, KEYSII, ANTHOPOGON, and HIPPOPHAEOIDES × FASTIGIATUM.

Amongst this year's seedlings, caterpillars have been very troublesome, at first a lot of small green ones, and now many tiny dark olive-green, which feed under the leaves, and when they drop are almost indistinguishable from the soil, and are thus difficult to catch. Some seedlings, which were not numerous, they have entirely destroyed.

E. J. P. MAGOR.

September 21st, 1919.

* Prostratum × fastigiatum, a most beautiful hybrid raised by Mr. Magor.—C. C. E.

The Rhododendron Society Notes.

MONREITH, WIGTOWNSHIRE.

The season 1919 has been exceptionally favourable for early flowering and early growing rhododendrons. The winter was very wet and mild till towards the end of January, when a cold spell came on with a minimum temperature of 15° Fahr. The weather throughout March was very cold, checking growth on the plants which were ready to start vigorously when the temperature rose in April, and there was a complete absence of late spring frost, owing to the prevalence of cloud.

Rhododendron BARBATUM, ARBOREUM, THOMSONII, SHILSONII, CAMPYLOCARPUM, etc., made a splendid display. R. DECORUM, *Franchet*, was loaded with bloom, and many plants of R. DECORUM, *Wilson*, flowered freely. I was absent on the Continent throughout May ; when I returned I found two plants of R. EDGWORTHII, trained six feet high, one on a north wall, the other on an east wall, covered with their fragrant blossoms. These had received no protection save that afforded by the walls.

In 1917 I received some plants of R. SINOGRANDE from Mr. J. C. Williams, which I planted out without protection. The spring frosts of 1918 destroyed the leading buds, but vigorous secondary growth was made, and they passed through the winter of 1918-19 without the slightest injury. This species seems to be of similar hardihood to R. GRANDE, *Wight*; that is, both, if well sheltered from wind, can resist any degree of winter cold that they are likely to encounter on the west coast : but, starting early in growth, they are apt to have their buds destroyed by spring frost.

R. MAXIMUM, 10 feet high, being in a position exposed to the north, suffered severely from the violent north winds that prevailed throughout March and part of April. Some of its branches were killed outright, but it flowered freely in late June on the lee-side.

We have only one plant of R. FULGENS here, and, having tried in vain to obtain others from various nurserymen, I shall be grateful for information as to where it can be found.

R. GLAUCUM promised a great display ; but the extreme drought that prevailed throughout March and April interfered, causing most of the flowers to fail to open.

HERBERT MAXWELL.

The Rhododendron Society Notes.

RHODODENDRONS AT ROWALLANE, CO. DOWN.

A few unpretentious notes on certain species of Rhododendrons growing here may prove of interest, though neither in the species referred to nor in my observations on their characteristics will there possibly be much that is new to members of the Rhododendron Society generally.

Amongst species of comparatively recent introduction that have so far flowered here, a front-rank position must be assigned to R. NERIIFLORUM. Apart even from the scarlet brilliancy of the flowers, its good compact habit and apparent hardiness, the plant possesses the further conspicuous merit of starting comparatively late into growth, and thus escaping the worst turns of spring frost. Moreover, it appears to develop flower-buds freely. Specimens here have been placed in various positions, ranging from full south to due north, with typical Rhododendron treatment as to soil, and it would appear that the healthiest plants are those which are sheltered from the mid-day sun, and generally enjoy a cool root-run.

R. HABROTRICHUM itself has not as yet flowered here, but amongst seedlings raised from imported seed of this species we find a few plants which would appear to be natural hybrids between it and R. NERIIFLORUM. The leaf is smoother, smaller, and more glaucous on the underside than in typical R. HABROTRICHUM, the hybrid in fact partaking more of R. NERIIFLORUM than of R. HABROTRICHUM, though yet amply distinct from the former species. This characteristic is further exemplified in the fact that the seedlings bearing most affinity to R. NERIIFLORUM are well set with flower-bud, whereas those of true R. HABROTRICHUM show no sign of flower. The bud of the hybrid is globular in form and of a dull-red colour, in contrast to the greenish-yellow of R. NERIIFLORUM. This matter of hybridity as between R. HABROTRICHUM and R. NERIIFLORUM in the one case, and between R. CALLIMORPHUM and R. NERIIFLORUM in the other, has been lucidly and conclusively dealt with by Prof. Bayley Balfour, in the January issue of Notes from the Royal Botanic Gardens, Edinburgh. There would at all events appear to be a recurrence here of characteristics which have been observed elsewhere.

The typical R. CALLIMORPHUM is growing happily here under conditions very similar to those afforded to R. NERIIFLORUM. This is undoubtedly a plant of peculiar charm from the early stages of the opening flower-bud of brilliant cherry-red to the fully expanded bell of salmon-pink, and faintly tinged with lilac, boldly blotched with crimson. Sturdy specimens on the north side of a big rock are developing into beautiful little bushes, symmetrical and compact, and following a fine display last May there is to-day promise of even better things next spring.

In R. HANCEANUM we appear to have a plant that represents a stumbling block to many a gardener, and bears in consequence a somewhat evil reputation. Here it clearly demonstrates its dislike of low-lying sunny positions, and appreciation of a sloping, well-drained bank where little or no sun can reach it, and

where its roots penetrate cool ground beneath a neighbouring stone. In such a position the somewhat pendulous growth and extreme freedom of flower is well displayed, and the plant generally receives the admiration which it rightly deserves. From seed of this species there has been raised here a pigmy sport—just a dark-green cushion bursting with creamy-yellow flowers, a mossy Saxifrage on a grand scale. One little mat, nine years of age, though perhaps one foot across, is still beneath two inches in stature, and when covered in bloom represents as pretty a picture as one could hope to find in any rock garden. R. BAILEYI, hailing the Brahmaputra River at the Thibet-Burmese bend, introduced by and named after its discoverer, Colonel Bailey, is rapidly developing into a stout, bushy shrub of good habit and undoubted hardiness. The conspicuous racemose truss of red-purple, saucer-shaped flowers are prettily borne in early May, and again, though less plentifully, in mid-October. The plants are profuse bloomers, and the litter of fallen petals that cover the ground around them tends but to prolong the effect of an attractive floral display. From a batch of R. BAILEYI seedlings some interesting diminutive forms have originated, characteristic of R. LEPIDOTUM, though possibly entitled to specific rank.

R. ZALEUCUM makes an attractive shapely bush, the neat foliage strikingly white on the underside, and the young growth almost rivalling Pieris japonica in beauty of tint. The flower, varying from pure white to pale shades of lilac, though sparsely borne till the plant is well established, is of decided delicacy and refinement. Culturally this species is easily satisfied, and seems equally happy in sun or shade. Where a neat, trim hedge of moderate dimensions is required, R. ZALEUCUM might well be given a trial. R. LEPTOTHRIUM, though eight years old from seed, has not as yet flowered here, and in the ordinary run of positions make singularly slow growth. A few plants, however, in a choice spot under the shelter of a high rock, where no glimpse of sun can reach the soil, look particularly promising, making clean, healthy growth each year with rich bronze-green foliage. This is a plant which appears to need care, and will doubtless well repay those who wait patiently for its "deep rose flowers with crimson markings." The free growth and good upright habit of the true R. DAVIDSONIANUM have here rapidly resulted in telling six feet specimens, which in May are literally covered with flowers, whose colour may be given as an attractive blending of pink and mauve. This is a well-disposed plant in almost any position, but is perhaps seen to best advantage in open ground and full sun. Likewise R. CHARIANTHUM, less upright and more spreading in habit, with blooms of lilac shading, rivalling in beauty of form and colour some of the best varieties of R. AUGUSTINII.

A bed of R. OREOTREPHES bears each spring a perfect multitude of flowers in shades of mauve, the prettily tinted leaves at such a time being scarcely discernible, though later asserting themselves as by no means the least attractive feature of a really good plant. The freedom with which this species bears seed is quite remarkable.

R. FORTUNEI CYANOCARPUM has not as yet flowered here, but as foliage plants many strong eight-year-old seedlings are distinctly noteworthy, individual leaves in some cases measuring nine inches by four. When young, the plants are

liable to be heavily cut by frost, but a vigorous constitution assists towards rapid recovery, and under such conditions individual plants have responded with as much as three feet of growth in a single season.

R. FULVUM has also shown no bloom here as yet, but it stands out as a handsome hardy plant with an exceptional richness of colouring on the underside of the leaf.

Such large-leaved, vigorous-growing species as R. DECORUM, DISCOLOR, FICTOLACTEUM, SUTCHUENENSE, and CALOPHYTUM enjoy and richly deserve a somewhat stronger diet than those of lighter growth, and when once established repay in vigour of wood and colour of leaf for a liberal mulching of well-rotted farm-yard manure.

The limits of space forbid reference to more than a restricted selection of the species growing here, and these notes will therefore conclude with a few remarks on the all-important matter of general cultivation. The natural soil here consists of a variable loam on a gravelly subsoil, with extensive outcrops of whinstone rock. Gorse is an exceptionally vigorous local weed, and here and there natural deposits of peat are to be found. The ground is mostly undulating in character and adequately furnished with timber of between 50 and 60 years growth. No special advantages are enjoyed by reason of proximity to the sea, or by an especially well-sheltered position generally. In the selection of sites for planting the main consideration centres round protection from harsh winds and good drainage, in ground free from overhead shade or drip, but where the full strength of summer sun is tempered by surrounding tree growth. The natural soil is but little relied upon except as a groundwork, and recourse is had to made-up material, composed of friable loam and peat in equal proportions, with one-part pure sand and two-parts decayed leaf-mould, incorporated. The surface after planting is mulched with three inches of dead leaves or light litter, a fair proportion of well-decayed farm-yard manure being added as soon as the more vigorous growing species have become established. In our climate there is little fear of dryness at the root, but an occasional soaking with clean water when roots are active is highly beneficial. A periodical thinning out of weak wood and the removal of decayed flowers amply repay careful attention. Under such conditions of culture the general run of Rhododendrons will flourish exceedingly. It is infinitely to the credit of the genus that so many of its members provide such rich adornment to our gardens with but little of the cultural attention here recommended.

H. ARMYTAGE MOORE.

The Rhododendron Society Notes.

GROWING LARGE-LEAVED RHODODENDRONS.

Many gardeners find a difficulty in growing some of the large-leaved species, such as R. GRANDE or its hybrid R. "ELSAE." I have found that it pays to grow small layers or seedlings of these large-leaved species partly under glass for two years. The layers are often but scantily rooted, and the plant has a hard struggle its first winter, and dies in its second one.

My plan is to put the layer or seedlings into a wooden box with plenty of leaf-mould in the soil, and then plunge the box in the border of an early peach house. If the house is heated so much the better, but nowadays coke is too valuable to waste on early peaches. But in any case the house will be shut up and the trees started early in January. The rhododendron, of course, starts its growth, and keeps growing without a check of any sort. By May the growth is completed, and then the box should be lifted and plunged again out of doors in a shady place; under a north or west wall is an excellent site. By the middle or end of October the plant should be again plunged in the peach house, and left there till the following May. It can then be moved again, box and all, to its summer quarters and finally planted out in the garden in the autumn.

The advantages of this method are well worth the trouble taken to obtain them. The plant has had two seasons growth without any check from frost or drought. It may quite well make from two to three feet of good growth in the two seasons, and if the soil was suited to rhododendrons the box will be full of excellent roots. It is a great pull to have a well-grown and well-rooted plant to put out, as such a plant will stand a hard winter, or any other adverse condition, much better than a stunted or badly-rooted specimen.

My plan has also the great advantage of giving the plant plenty of time to ripen its wood, and really ripe wood will stand a very hard winter without flinching. I do not suggest that all this trouble is required in Cornwall or other favoured parts of Great Britain and Ireland, but here in Sussex, 440 feet above sea level, it pays over and over again.

I am now growing a fine young seedling of R. SINOGRANDE on this plan, and I hope by October, 1921, to have a real big plant to put out in the garden. If this species is just on the border line of true hardiness, I feel sure my method will give me the best chance to get it established.

CHARLES G. A. NIX.

The Rhododendron Society Notes.

SOME NOTES ON THE RAISING OF RHODODENDRON SEEDLINGS.

It may be agreed that certain species and hybrids of this family are easy to raise a few of, if you sow a lot of seed, although in the first two years of life even these will die if subject to prolonged drought or to over-watering.

We have all seen certain gardens where the self-sown seeds of Azaleas and Rhododendrons come up in the open freely, but in the average garden these places are less common, and if noticed with care will be seen to show in the most positive way what the young plants need and what they most resent. Broadly speaking, they enjoy shade from the full sun, and an even measure of moisture all through the growing season, with no weeds to smother them.

Mr. White, of Sunningdale, is perhaps the only man in this country who has taken the teaching of nature, and so improved on it, that he has been able to raise scores of rare species of Rhododendrons of all sorts and sizes in the open with no glass to help him, but I think in most cases he has been able to sow the seed in good quantity. Anyone interested in this matter would learn much by seeing what he does, and above all by hearing why he does it. The objection to his plan is that, at any rate in some instances, it takes quite five years to reach the point three-year-olds can be brought to if started under glass, and two years of gardening life is a lot to give away.

I should not like to say positively which is the best way of sowing seed, but after many years of raising seedlings we now use wooden pans only. They are 8 inches by 8 inches, and 4 inches deep, with the wood in the bottom section made of three pieces about one-sixth of an inch apart for drainage.

In the case of species from abroad, it is not always possible to know what sort of rhododendron is in the packet, and so we have a sort of standard mixture for the soil in the pans, consisting of one-third silica sand, one-third hedge earth, and one-third fine leaf soil. If we know the seed to be of the very small high mountain species, we greatly increase the silica sand. The soil in the pan has plenty of drainage to keep the openings in the bottom of the pan clear, and is well steamed in the pan before sowing. The seed is sown on the surface of the pan, and after sowing the pan is covered with a sheet of glass of the same size as the pan.

Germination takes place in good seed about the twenty-first day. As the plants develop, a little air is given by raising one edge of the glass, and that is increased as they grow, but as far as may be an attempt is made to keep them cool and moist without much overhead watering, but some judgment and much careful watching is needed in doing that effectively.

Perhaps the temperature and air moisture of an Odontoglossum house is the ideal place for starting Rhododendrons in from April to June, but after that the air should not be so moist, or the plants will be too soft to battle with the greatest risk in their lives, that is the danger of damping off between August and May.

When the summer nears its end the surface of the pans should receive less and less moisture, so that when the autumn comes the roots will have gone down further into the soil, and then the plants should only receive water from below.

I prefer eight-inch wooden pans all of the same size, then it is easy to know if a pan is in need of water by its weight, at any rate after a little experience, for the eye is nearly useless for this purpose.

With a view to obtaining a nearly dry surface to the pan after August or September, they should only be watered (and that only at long intervals), by partial immersion for a short time in a larger pan with water in it, care being taken to prevent the water reaching the surface of the seed pan. This, I think, with a clean and fairly dry house, is the best medicine to meet the great danger of damping off.

As regards pricking off, it is best to start doing it as soon as the seedlings are large enough to handle, so as to leave a good air space around the plants left in the stock pan, and to enable the transplanted seedlings to have more room in the new pan to develop.

The newly transplanted seedlings should have the shelter of the glass on the pan for a few days, air being admitted as seems best, after they have settled in the new pan. When these seedlings, whether in the stock pan or in the transplanted pans, begin to show fair sized plants, they should be moved on again to a bed in a frame. The frame may face south if it is really well shaded, and great care must be taken to prevent it becoming too dry or too wet.

When the plants there have made a good growth, they should be moved into a nursery.

I have found that if you try and break a stock of a species up, and work it in several lots, with rather different treatment for each lot, you will be able later to get very much more advanced plants from some lots than from others, and so to gain time and development.

It is worth notice that even if you have had a fairly long experience at this work, there is no certainty as to how you can best get a given species to develop quickly, though if the best plants of a batch are watched closely, and also the worst plants, the causes of the contrast can often be arrived at.

The essence of the whole business is first to raise plants, and then to develop them as rapidly as may be, and it all requires very close attention for success.

J. C. WILLIAMS.

August, 1919.

The Rhododendron Society Notes.

NOTES ON CHINESE RHODODENDRONS AS GROWN IN CORNWALL.

I propose to again give my present impressions on the garden value of some of the species of Chinese rhododendrons lately introduced, but must repeat that these impressions are in many cases the result of a very limited experience of the plants.

R. BULLATUM seems to be of a rather more compact habit and to have larger flowers than its kinsman, R. EDGWORTHII, and as a garden plant it seems to be rather hardier. It much resents excessive moisture at the root. It shoots freely if cut back hard at the right season.

R. CALLIMORPHUM, apparently a dwarf and compact bush with truss of small campanulate bells which are a pleasant shade of pink. It appears to be easy of cultivation. To me this is a most attractive plant, though not of the highest class.

R. CRASSUM is one of the Chinese forms of the MADDENII series so ably described by Mr. Hutchinson. The flowers are white with yellow blotch, the plant is a free grower and at any rate hardy in Cornwall.

R. FARGESII, a bush of medium size, and apparently easy of cultivation. It is a free bloomer, the truss is loose, the flowers, about 2½ inches across, are usually a shade of pink; they show great resistance to frost. The flower and dull grey leaf are a very pretty combination.

R. FORTUNEI Series. For length of flowering season, for truss, for substance, and for general value to the hybridiser this series will probably prove of greater value than any other. Wilson's forms for late flowering and Forrest's forms for substance and truss are alike remarkable. They have one common weakness, they show the result of heavy rain or of a bumble bee's visit by a brown bruise in a far greater degree than I have noticed with any other hardy rhododendron.

R. HÆMATODES. This may prove to be a most popular rhododendron. It is of dwarf and spreading habit, the leaf has a thick brown tomentum, and the flowers, which promise to open late in the season, are bright scarlet. In Cornwall it does not seem to be a plant easy of cultivation, but it does not follow that it will not prove a good plant in other parts of England. Apparently it is perfectly hardy.

R. MACULIFERUM. A small shrub with loose truss of pale pink to white, campanulate bells with crimson spot, the buds are pink before opening. It flowers in April. As a woodland plant it shows great refinement when in bloom by itself, but it undoubtedly requires isolation.

R. MICRANTHUM. A bushy plant of medium size. The very small ivory white flowers are freely produced in many flowered trusses, and when they are open the plant closely resembles a Ledum.

R. NERIIFLORUM. There seems to be two forms, one being of a spreading and the other of a more upright habit. The truss is loose, but the flowers and also the calyx are in some cases a remarkable shade of tomato-red and very striking. I consider this plant for garden effect likely to prove itself one of the most valuable of Forrest's discoveries. It flowers in May and seems easy of cultivation.

R. ORBICULARE. When well-grown, this is a most striking plant, both in flower and out of flower. It is of flat spreading habit as far as my experience

goes, but I see Mr. Bean describes it * "up to 6 or 9 feet high." Probably there is more than one type. The flat habit and the deeply cordate, somewhat rounded leaves give the plant great character. The campanulate flowers, which are borne in a loose cluster, open deep rose. It seems to be a very difficult plant to grow well and is scarce.

R. OREODOXA. When I first saw this plant in bloom I was disappointed, and I did not consider it of garden value. I now willingly admit that when it is not absorbed by its surroundings it is well worth growing. The flowers open pink and rapidly fade to white.

R. RIREI. The flowers have been described as white, but all the plants I have seen have had purple flowers with darker blotch. It opens early in March, and when in bloom is quite a striking plant. The foliage is not a good green, which, together with the early flowering, will probably prevent it becoming a popular plant.

R. SOULIEI. In Cornwall this is a very difficult subject, and most of the plants I know in the West have brown tips to their leaves. I have seen it very good in other parts of England, and it should certainly be tried, as its glaucous leaf and rose flowers make it when in health a very lovely plant.

R. SPINULIFERUM. This is an unusual plant, the flowers certainly do not convey the popular idea of a rhododendron. They are in a cluster, not a truss, quite tubular, with protruding anthers. Colour red with a tinge of yellow. It seems hardier than was at first expected.

RHODODENDRONS REMARKABLE FOR THEIR FOLIAGE.

There will certainly be very many remarkable foliage plants among the Chinese species lately come to hand, but of the earlier ones I would like to briefly mention the following, which are sure to be popular, owing to their great character of leaf. I have not seen any of them in flower. I refer to SINOGRANDE, FULVUM, HABROTRICHUM, ERIOGYNUM, GLISCHRUM.

R. SINOGRANDE. This truly magnificent plant is thought by some experts to be the finest foliage plant that is hardy anywhere in Britain. I understand it has been killed by frost in the colder parts of England. The size of the leaf inevitably arrests attention, and the beautiful bronze colour as it unfolds, with its highly glabrous face at all seasons, insure it being a distinguished plant anywhere. Plants in the young stage, say four or five years, generally show the maximum size of leaf, and at this age I have measured the actual leaf of SINOGRANDE 22 inches long.

R. FULVUM has a large leaf with the most beautiful bright apricot felt of any plant I know.

R. HABROTRICHUM is remarkable for the bright crimson bristles rather than hairs on the young growth, these are retained for a long while.

R. GLISCHRUM and R. ERIOGYNUM are both remarkable for leaves which give a wonderful colour effect with a quality and finish which may be said to resemble velvet. In the case of GLISCHRUM this is due to the presence of well-defined hairs on the upper surface of the young leaf, and in ERIOGYNUM to a felty bloom.

P. D. WILLIAMS.

* Wilson in Plantæ Wilsonianæ, Vol. I., p. 540, gives the height of R. orbiculare as 1·5 to 4 metres high—say 5 to 13 feet.